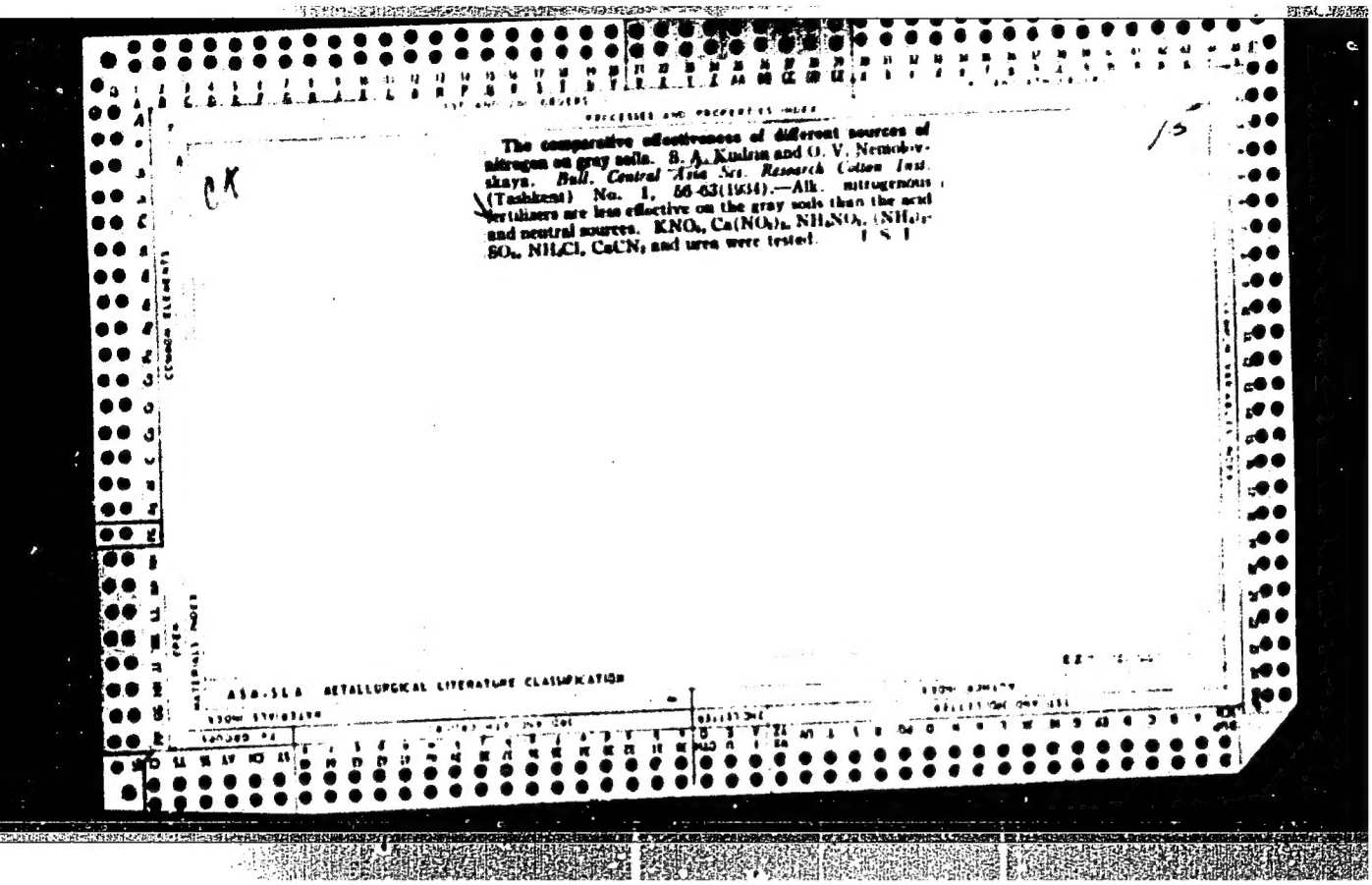
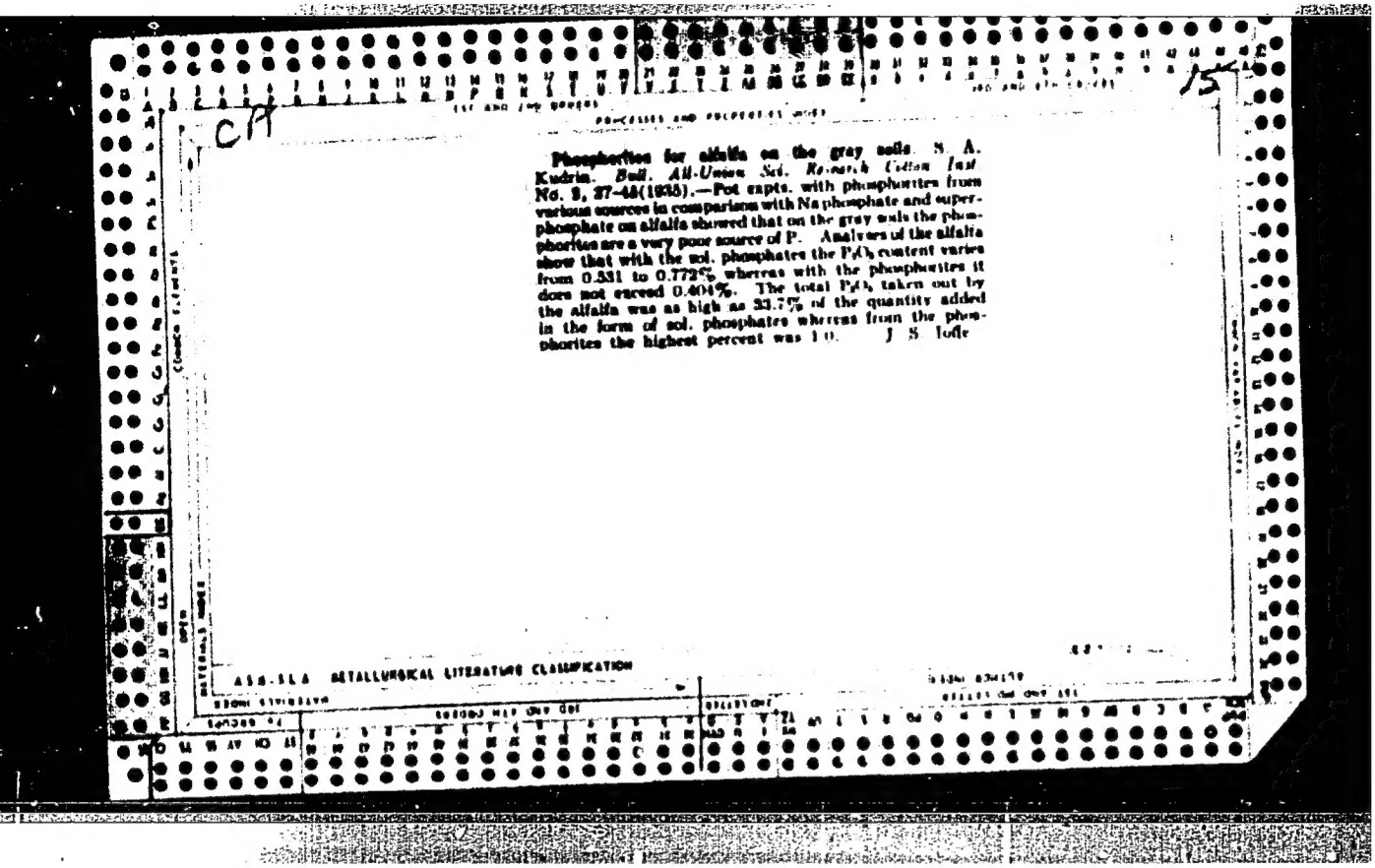


The comparative effectiveness of different sources of nitrogen on gray soils. S. A. Kuleiu and O. V. Nemobovskaya. *Bull. Central Asia Sci. Research Cotton Inst.* (Tashkent) No. 1, 56-63(1934).—Alk. nitrogenous fertilizers are less effective on the gray soils than the acid and neutral sources. KNO_3, $Ca(NO_3)_2$, NH_4NO_3, $(NH_4)_2SO_4$, NH_4Cl, $CaCN_2$ and urea were tested. I. S. I

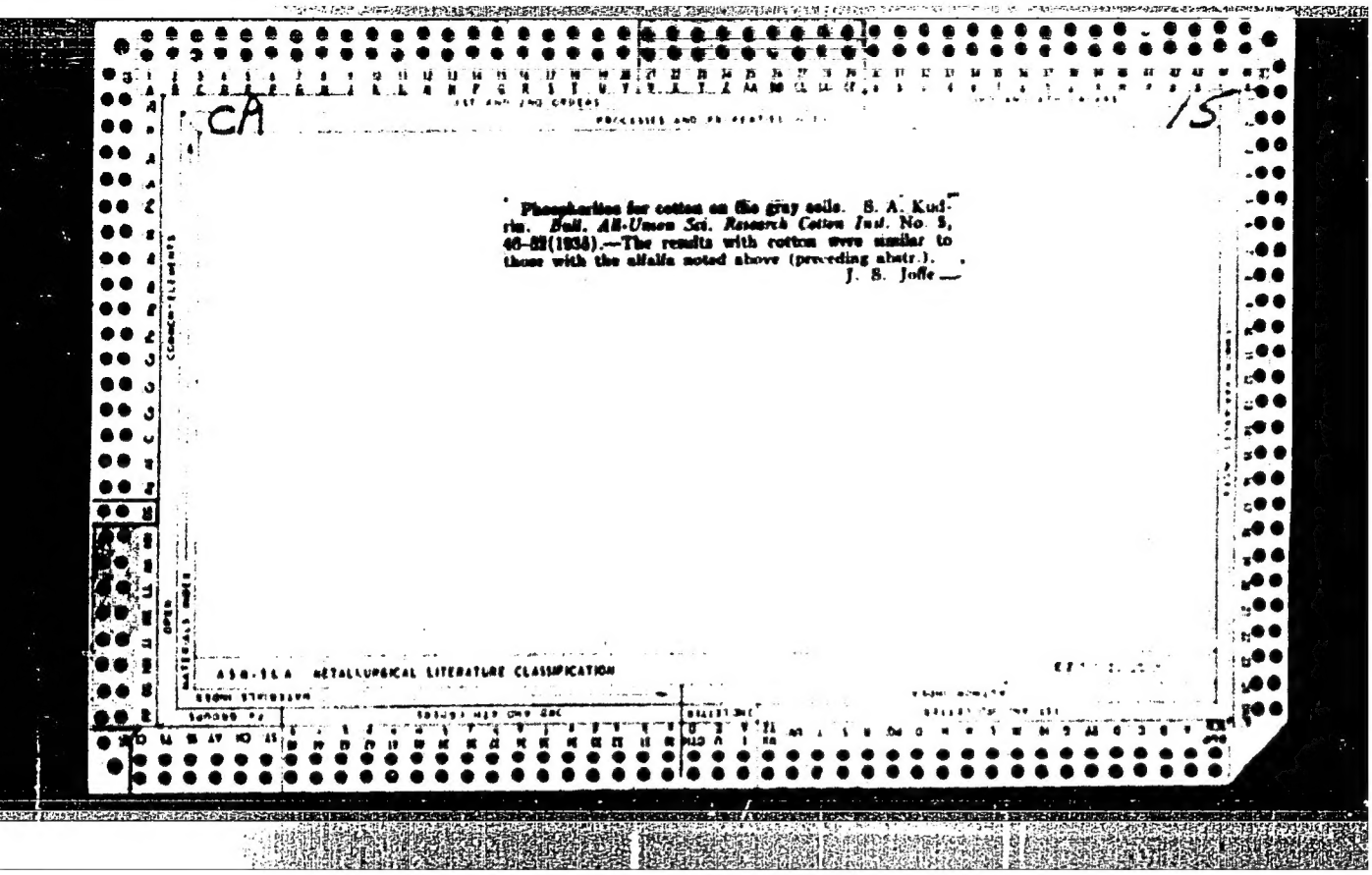
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



CP

Phosphorites for alfalfa on the gray soils. S. A. Kudrin. *Bull. All-Union Sci. Research Cotton Inst.* No. 2, 37-48(1935).—Pot expts. with phosphorites from various sources in comparison with Na phosphate and superphosphate on alfalfa showed that on the gray soils the phosphorites are a very poor source of P. Analyses of the alfalfa show that with the sol. phosphates the P_2O_5 content varies from 0.531 to 0.772%, whereas with the phosphorites it does not exceed 0.404%. The total P_2O_5 taken out by the alfalfa was as high as 33.7% of the quantity added in the form of sol. phosphates whereas from the phosphorites the highest percent was 1.0. J. S. Iofe

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



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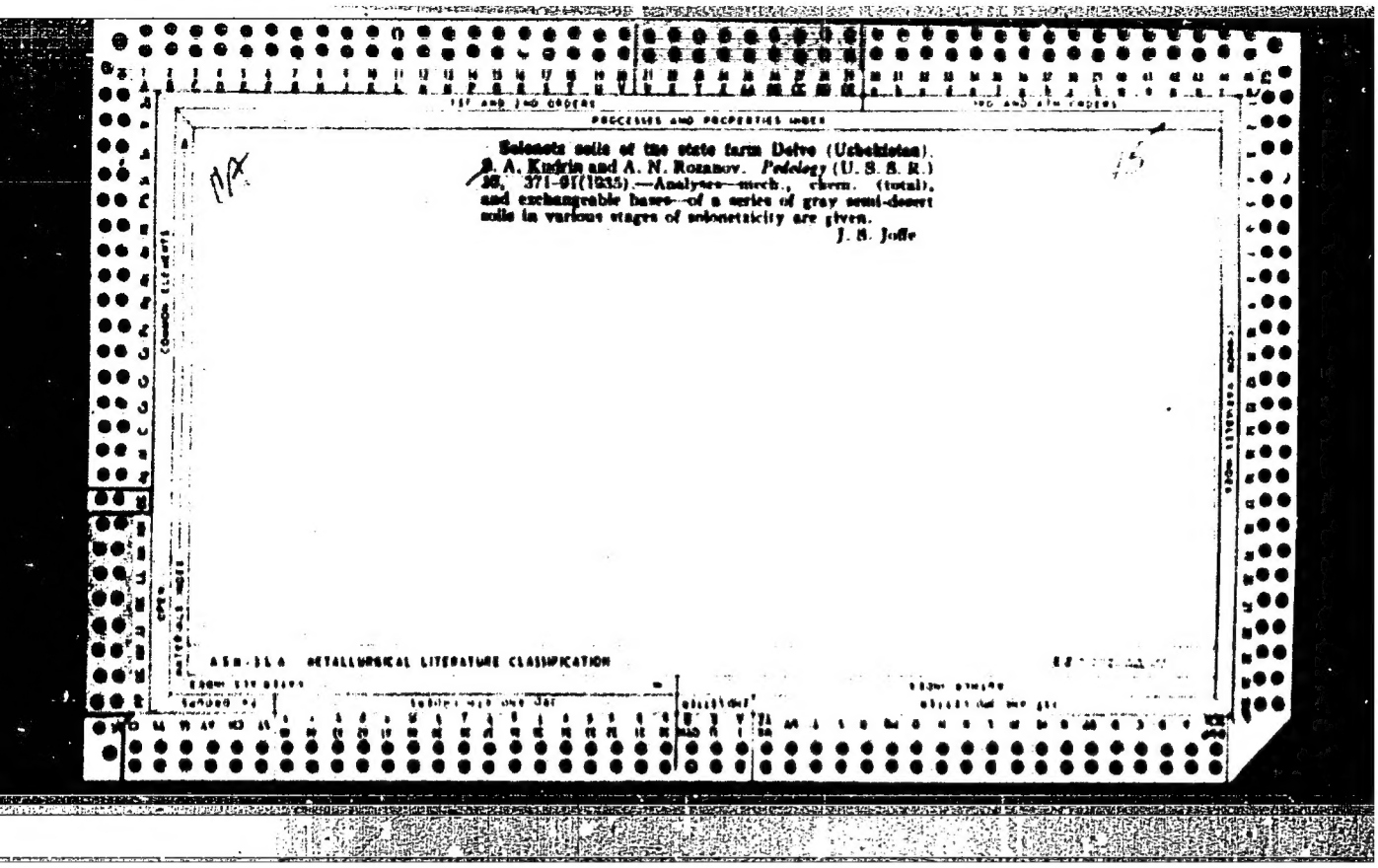
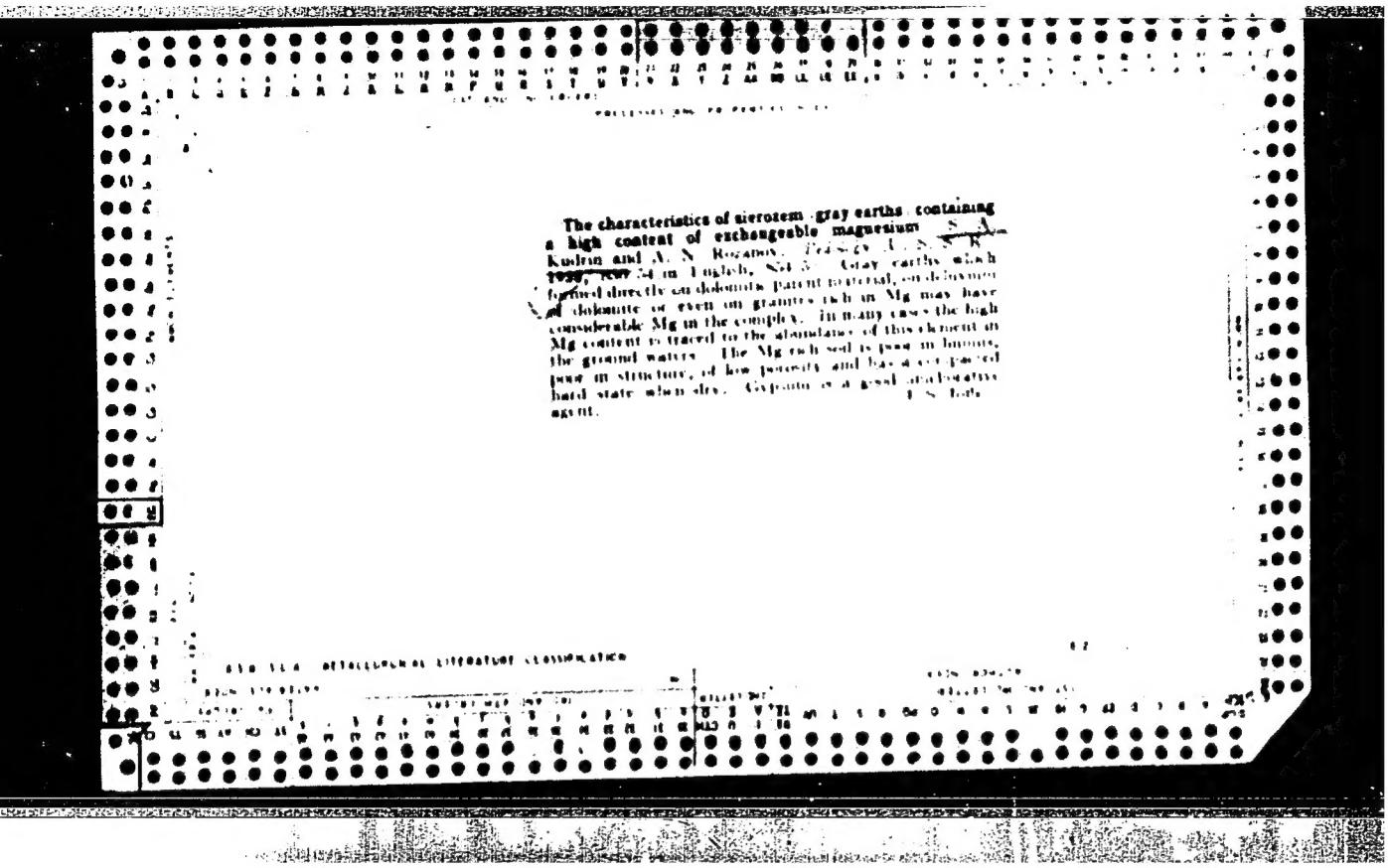
15

Phosphorites for cotton on the gray soils. B. A. Kudrin. *Bull. All-Union Sci. Research Cotton Inst.* No. 5, 46–52(1934).—The results with cotton were similar to those with the alfalfa noted above (preceding abstr.).
J. S. Joffe

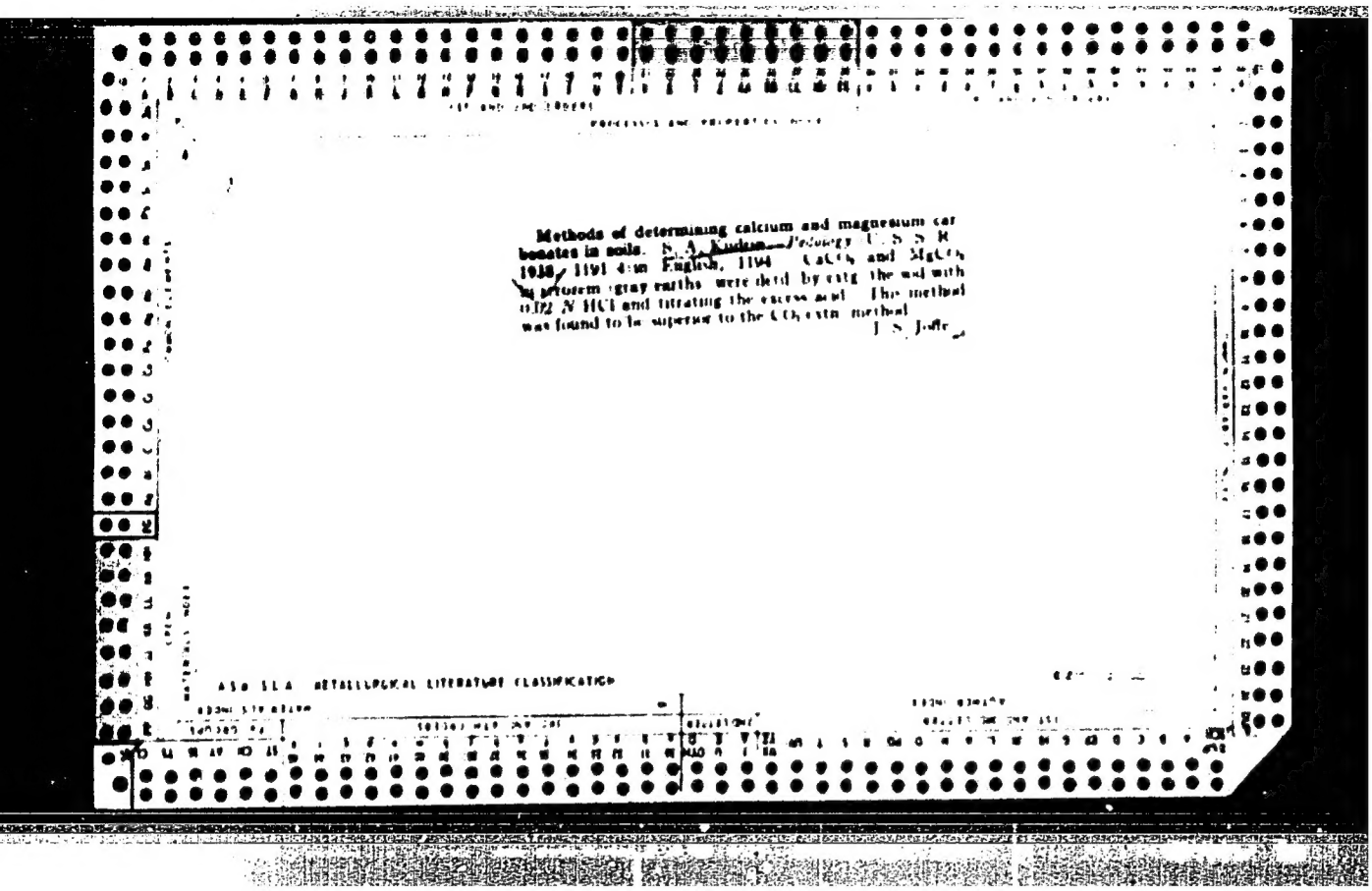


Solonets soils of the state farm Dalva (Uzbekistan).
B. A. Kudrin and A. N. Rozanov. *Pedology* (U. S. S. R.) 30, 371-91(1935).—Analyses—mech., chem. (total), and exchangeable bases—of a series of gray semi-desert soils in various stages of solonetzicity are given.
J. S. Joffe



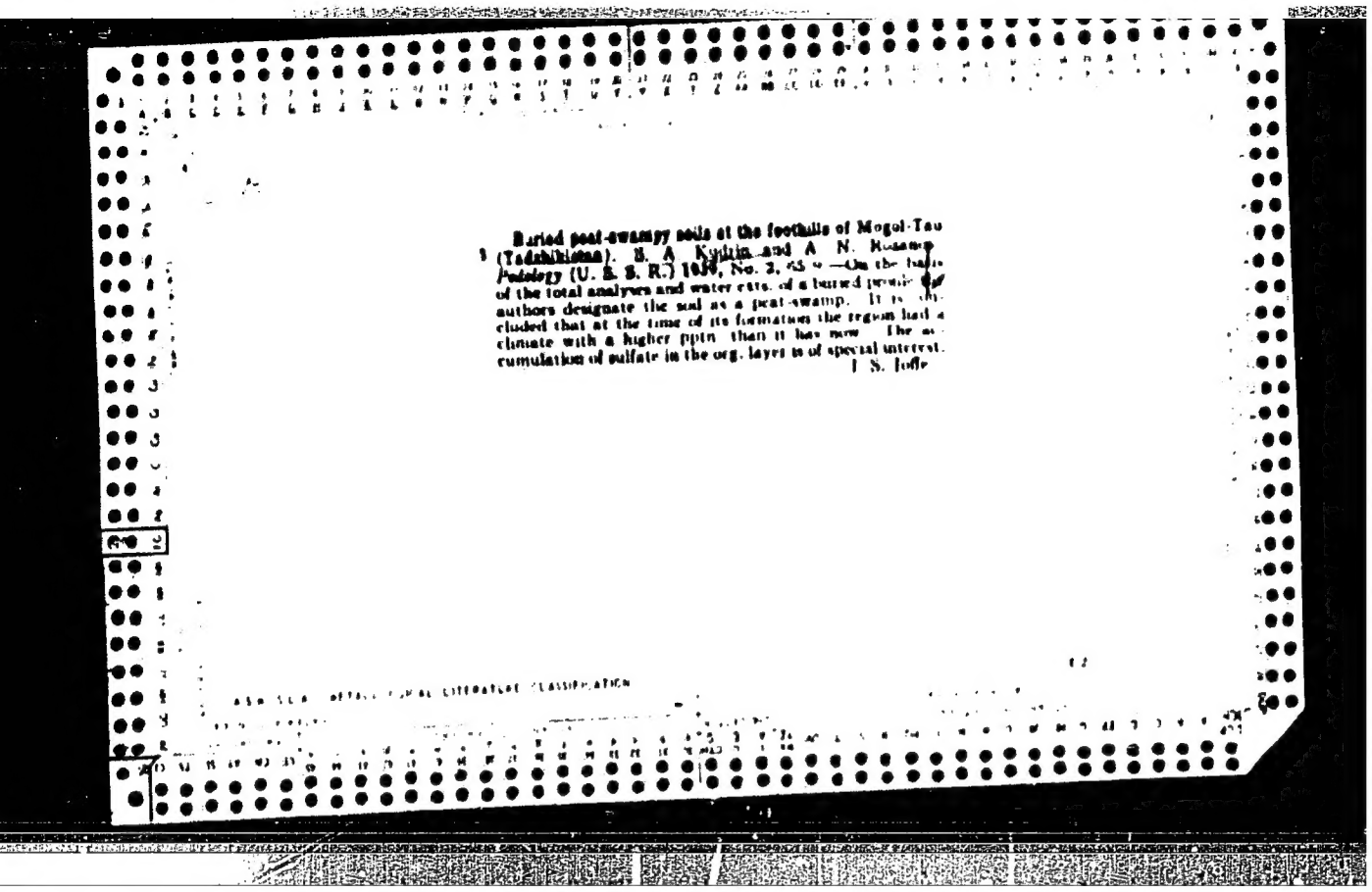
The characteristics of sierozem gray earths containing a high content of exchangeable magnesium

Kudrin and A. N. Rozanov. [illegible]
1939, [illegible] in English, Sci. [illegible] Gray earths which formed directly on dolomite parent material, on dolomoraine or dolomite or even on granites rich in Mg may have considerable Mg in the complex. In many cases the high Mg content is traced to the abundance of this element in the ground waters. The Mg rich soil is poor in humus, poor in structure, of low porosity and has a compacted hard state when dry. Gypsum is a good ameliorative agent.

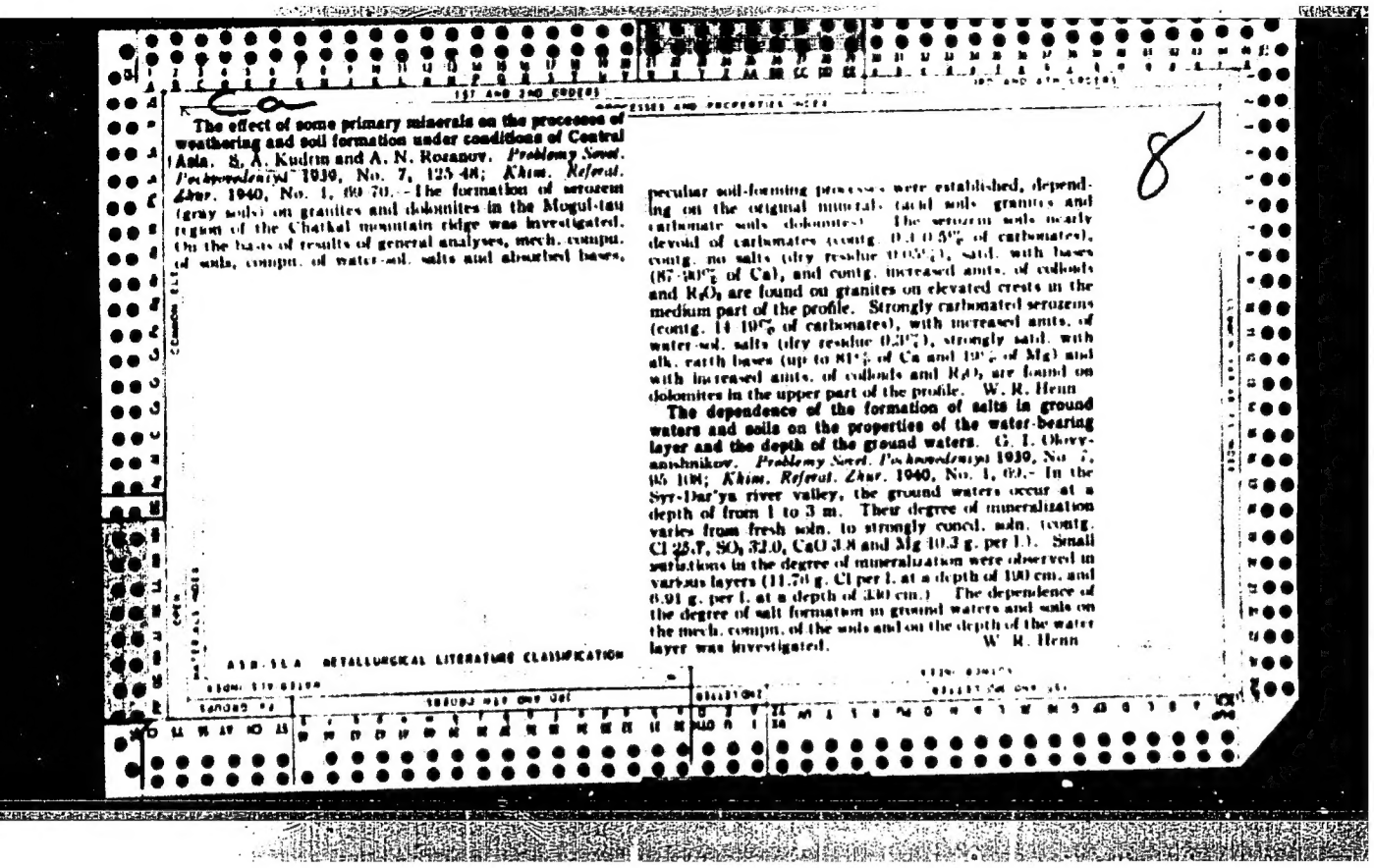


Methods of determining calcium and magnesium carbonates in soils. S. A. Kudelya—Pedology U. S. S. R. 1938, 1191 4 tm English, 1194 CaCO3 and MgCO3 in petrosem gray earths were detd by extg the soil with 0.02 N HCl and titrating the excess acid. The method was found to be superior to the CO2 evtn method.

J. S. Joffe

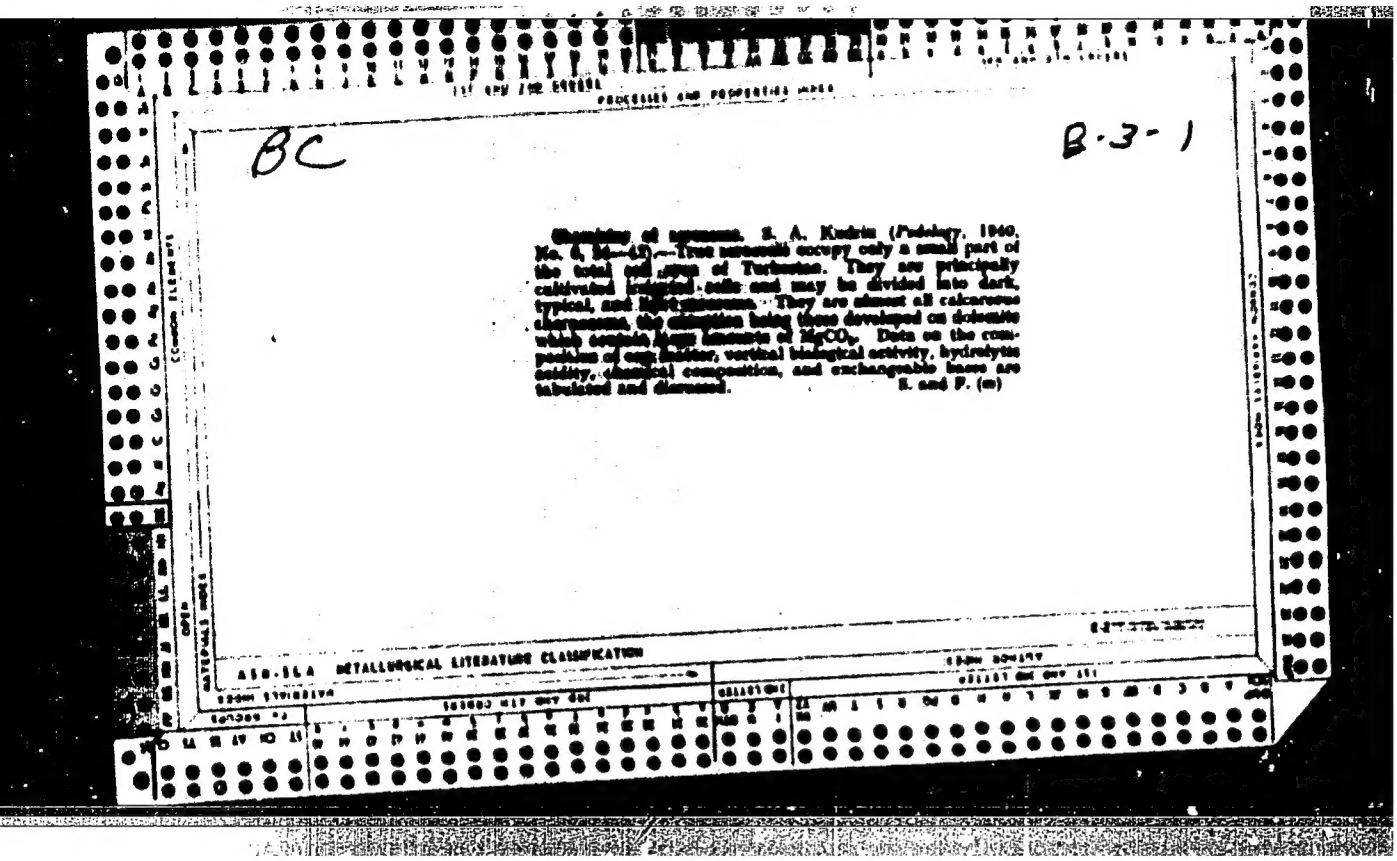


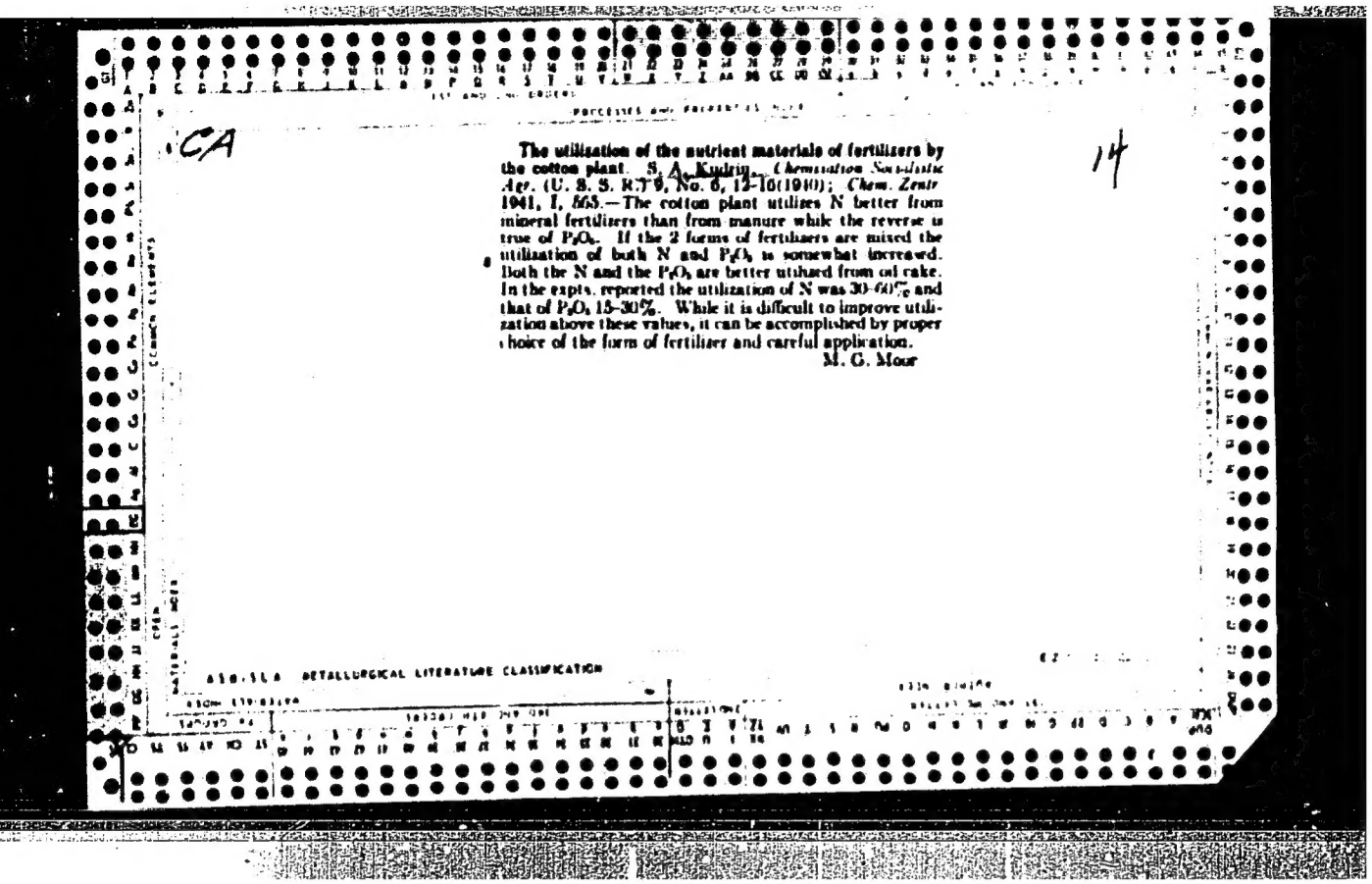
Buried peat-swampy soils at the foothills of Mogol-Tau (Tadzhikistan). B. A. Kydyin and A. N. Rozanov. *Pedology* (U. S. S. R.) 1939, No. 3, 45 v.—On the basis of the total analyses and water ests. of a buried peaty soil the authors designate the soil as a peat-swamp. It is concluded that at the time of its formation the region had a climate with a higher ppin than it has now. The accumulation of sulfate in the org. layer is of special interest.
I. S. Joffe



The effect of some primary minerals on the processes of weathering and soil formation under conditions of Central Asia. S. A. Kudrin and A. N. Rozanov. *Problemy Sovet. Pochvovedeniya* 1939, No. 7, 125-48; *Khim. Referat. Zhur.* 1940, No. 1, 69-70.—The formation of serozem (gray soils) on granites and dolomites in the Mogul-tau region of the Chatkal mountain ridge was investigated. On the basis of results of general analyses, mech. compn. of soils, compn. of water-sol. salts and absorbed bases, peculiar soil-forming processes were established, depending on the original mineral (acid soils: granites and carbonate soils: dolomites). The serozem soils nearly devoid of carbonates (contg. 0.1-0.5% of carbonates), contg. no salts (dry residue 0.05%), satd. with bases (87-90% of Ca), and contg. increased amts. of colloids and R_2O_3 are found on elevated crests in the medium part of the profile. Strongly carbonated serozems (contg. 14-19% of carbonates), with increased amts. of water-sol. salts (dry residue 0.2%), strongly satd. with alk. earth bases (up to 81% of Ca and 19% of Mg) and with increased amts. of colloids and R_2O_3 are found on dolomites in the upper part of the profile. W. R. Henn

The dependence of the formation of salts in ground waters and soils on the properties of the water-bearing layer and the depth of the ground waters. G. I. Okvy-anishnikov. *Problemy Sovet. Pochvovedeniya* 1939, No. 7, 85-108; *Khim. Referat. Zhur.* 1940, No. 1, 69.—In the Syr-Dar'ya river valley, the ground waters occur at a depth of from 1 to 3 m. Their degree of mineralization varies from fresh soln. to strongly concd. soln. (contg. Cl 25.7, SO_3 32.0, CaO 3.8 and Mg 10.3 g. per l.). Small variations in the degree of mineralization were observed in various layers (11.70 g. Cl per l. at a depth of 100 cm. and 6.91 g. per l. at a depth of 330 cm.). The dependence of the degree of salt formation in ground waters and soils on the mech. compn. of the soils and on the depth of the water layer was investigated. W. R. Henn





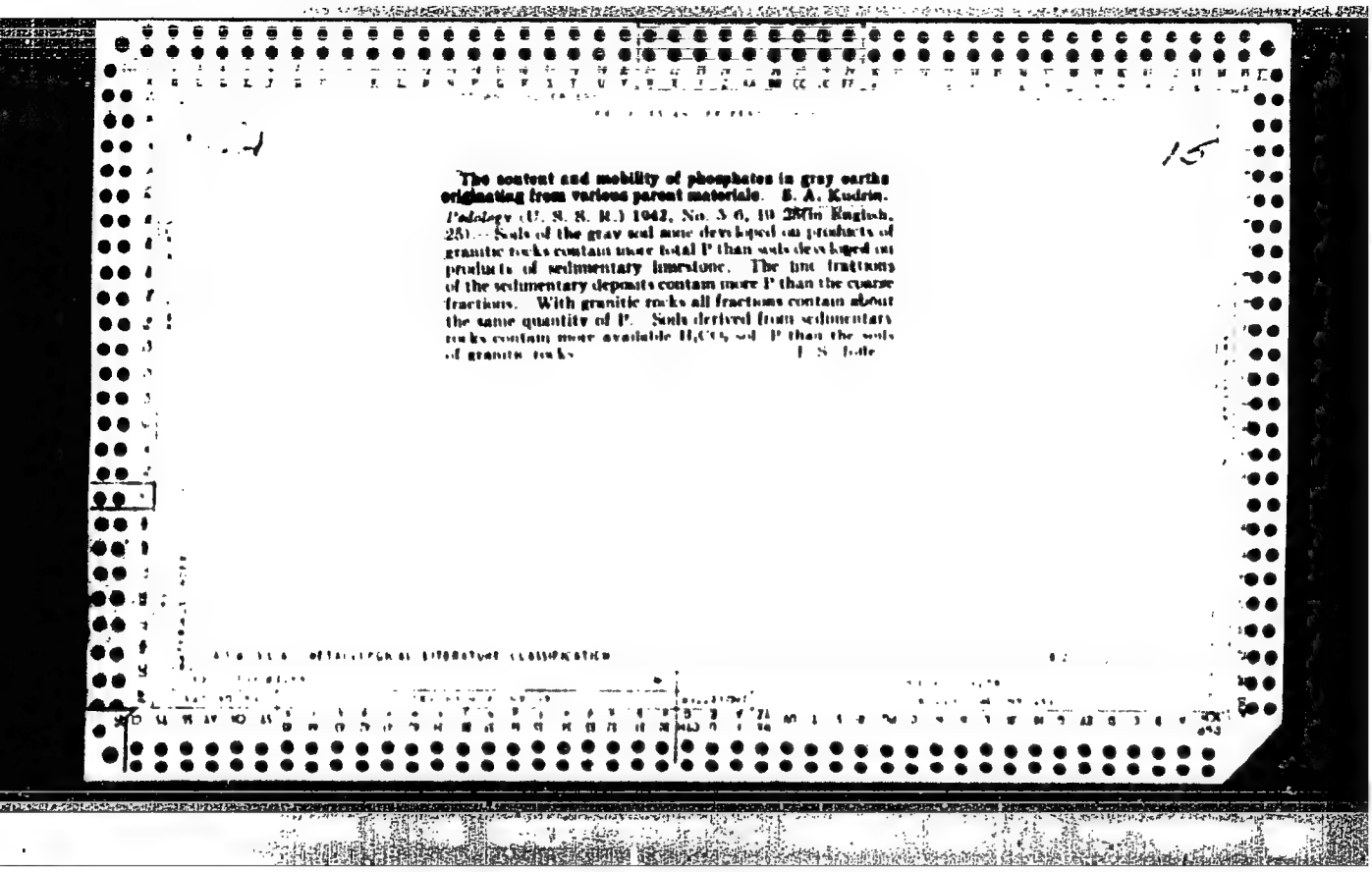
CA

14

The utilization of the nutrient materials of fertilizers by the cotton plant. S. A. Kudrin. *Chemisation Socialistic Agr.* (U. S. S. R.) 9, No. 6, 12-16(1940); *Chem. Zentr* 1941, I, 865.—The cotton plant utilizes N better from mineral fertilizers than from manure while the reverse is true of P_2O_5. If the 2 forms of fertilizers are mixed the utilization of both N and P_2O_5 is somewhat increased. Both the N and the P_2O_5 are better utilized from oil cake. In the expts. reported the utilization of N was 30-60% and that of P_2O_5 15-30%. While it is difficult to improve utilization above these values, it can be accomplished by proper choice of the form of fertilizer and careful application.

M. G. Moor

A10-51A METALLURGICAL LITERATURE CLASSIFICATION



The content and mobility of phosphates in gray earths originating from various parent materials. S. A. Kudrin. *Pedology* (U. S. S. R.) 1942, No. 5-6, 10-28 (in English, 25).—Soils of the gray and mine developed on products of granitic rocks contain more total P than soils developed on products of sedimentary limestone. The fine fractions of the sedimentary deposits contain more P than the coarse fractions. With granitic rocks all fractions contain about the same quantity of P. Soils derived from sedimentary rocks contain more available H_3CO_4-sol. P than the soils of granitic rocks. J. S. Joffe

Oct 48

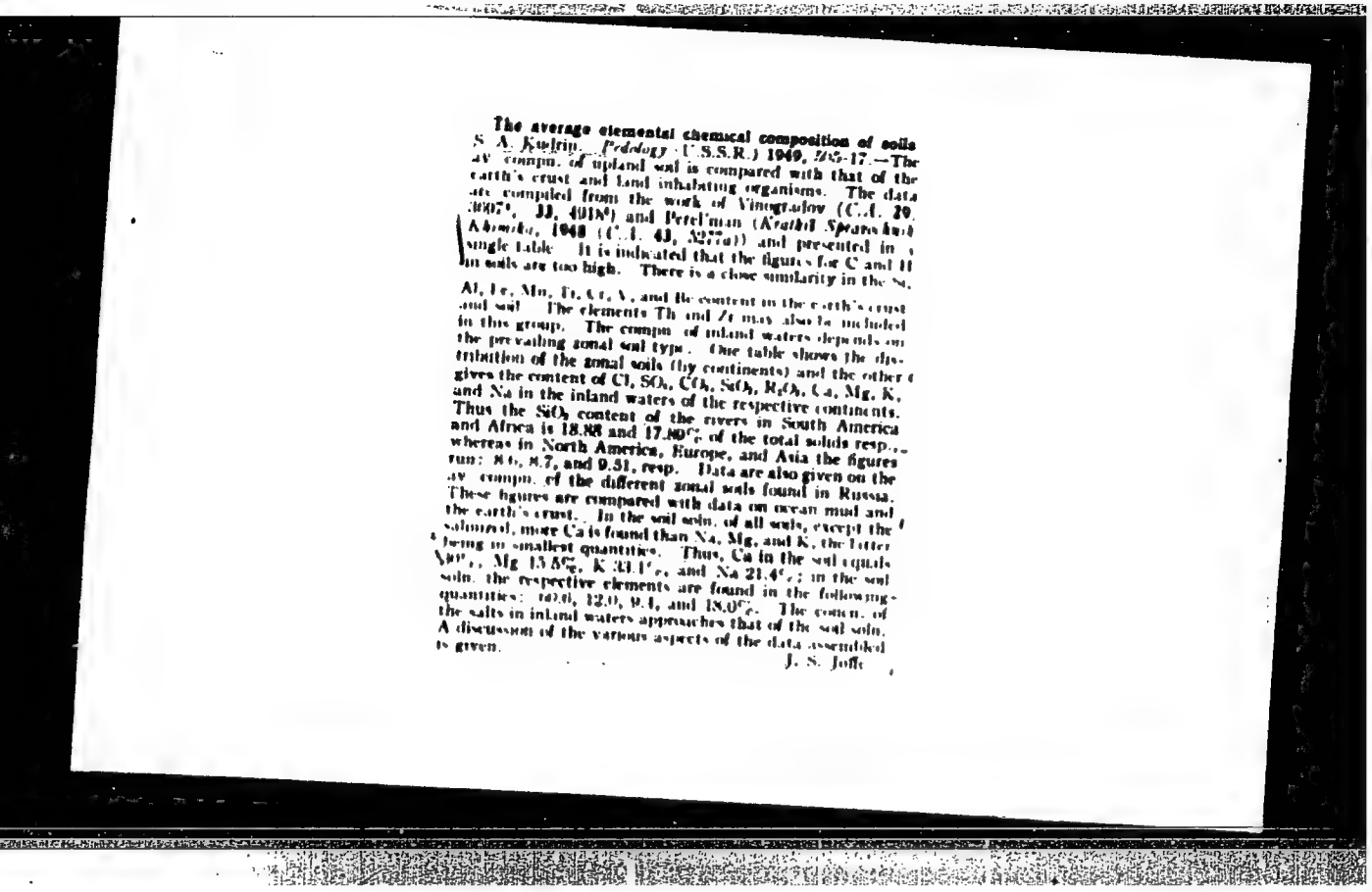
USSR/Agriculture
Soil Science
Geophysics

"Entry of Nitrogen Into the Soil of the Gray Desert Zone During Rainfall," S. A. Eudrin, Inst of Soil Sci, Acad Sci Uzbek SSR, 4 pp

"Pochvovedeniye" No 10 - p.608-11

Conducted series of observations at Ak-kavkaz experimental station, 1945-1947. Soil around station is typical gray earth. Tests were conducted in both rain and snow. Lists results of monthly precipitation, and relative amount of nitrogen in the precipitation. Highest nitrogen content was in Jul.

49/49T11



The average elemental chemical composition of soils S. A. Kuglin. *Pedology* (U.S.S.R.) **1949**, 205-17.—The av. compn. of upland soil is compared with that of the earth's crust and land inhabiting organisms. The data are compiled from the work of Vinogradov (*C.A.* **39**, 3007[9], **33**, 4018[8]) and Petel'man (*Kratkii Spravochnik Khimika*, **1948** (*C.A.* **43**, 3277*a*)) and presented in a single table. It is indicated that the figures for C and H in soils are too high. There is a close similarity in the %, Al, Fe, Mn, Ti, Cr, V, and Be content in the earth's crust and soil. The elements Th and Zr may also be included in this group. The compn. of inland waters depends on the prevailing zonal soil type. One table shows the distribution of the zonal soils (by continents) and the other gives the content of Cl, SO_4, CO_3, SiO_2, R_2O_3, Ca, Mg, K, and Na in the inland waters of the respective continents. Thus the SiO_2 content of the rivers in South America and Africa is 18.88 and 17.80% of the total solids resp., whereas in North America, Europe, and Asia the figures run: 8.6, 8.7, and 9.31, resp. Data are also given on the av. compn. of the different zonal soils found in Russia. These figures are compared with data on ocean mud and the earth's crust. In the soil soln. of all soils, except the solonetzol, more Ca is found than Na, Mg, and K, the latter being in smallest quantities. Thus, Ca in the soil equals 50%, Mg 13.8%, K 31.1%, and Na 21.4%; in the soil soln. the respective elements are found in the following quantities: 10.0, 12.0, 9.1, and 18.0%. The compn. of the salts in inland waters approaches that of the soil soln. A discussion of the various aspects of the data assembled is given.

J. S. Joffe

Soils - Soviet Central Asia

"Gray desert soils of Central Asia." A.N. Rozanov. Reviewed by S.A. Kudrin. Pochvovedenie, No. 1, 1952.

9. Monthly List of Russian Accessions, Library of Congress, June 1952. Unclassified.

KUDRIN, S. A.
Prof

23575

USSR/Agriculture - Phosphorus Fertilizers Sep/Oct 52

"The Phosphorus Cycle, and the Transformation of Phosphate Fertilizers in the Soil," Prof S. A. Kudrin

"Agrobiologiya" No 5, pp 91-101

Treating the subject from a dialectical materialism standpoint, the author frequently quotes V. R. Vil'yams as an outstanding authority on agrarian problems, though frequently disagrees with him. Author considers that the process of transformation of phosphates in the soil should be considered primarily from the biol standpoint and only secondarily as a chem process.

23575

1. KUDRIN, S., Prof.

2. USSR (600)

4. Fertilizers and Manures

7. Chief problems in the study of effective application of fertilizers in cotton growing. Khlopkovodstvo no. 11 1952.

9. Monthly List of Russian Accessions, Library of Congress, March 1953. Unclassified.

KUDRIN, S. A.

Chemical Abstracts
May 25, 1954
Soils and Fertilizers

(1)

An evaluation of different sources of potassium fertilizer salts. S. A. Kudrin. *Izvestiia* 2, No. 1, 59-63(1954).—A theoretical discussion on the effects of Cl on a number of plants as compared with sulfate, both of which enter the plant with K. It is argued (and some examples are cited to support the argument) that the exclusive use of either one of the sources of K is not advisable. In the mixts., the Cl ion should be in smaller quantities than the sulfate ion.

I. S. Joffe

Greater of potassium as a source of the element for plants. B. A. Krukov (Va. Somerville Jr. Exp. Station, Norfolk, Va.) Soil Sci. 61, 233-41 (1946). On basal soil reduced plants in pots, oligoclase, orthoclase, and microcline rather weakly the K of feldspars, as compared with a no. of crops. Lepidolite and muscovite were good sources of K. The K of the glassy structure minerals, such as biotite, phlogopite, and vermiculite, was readily utilized by plants. Muscovite and [illegible] as a source of K for plants the other minerals. Of the silicate minerals, lepidolite resembles muscovite in its K availability. Glauconite seems to be a very poor source of K, but apophyllite turned out to be a good source of K. The reasons for the difference in availability of K from the minerals studied are discussed, with their crystal structures. J. S. J.

KUDRIN S.A.

The effect of potassium chloride and potassium sulfate on yield of flax. S. A. Kudrin. [illegible] 1956, No. 1, 135-42.—No difference in yield was noted by using either one of the sources of K or mixts. of these. Schweiz. [illegible] got as good a source of K

J. S. Joffe

KUDRIN, S.A., prof.

Effect of potassium fertilizers on the development and yield of barley and oats. Agrobiologiia no.4:621-623 Jl-Ag '59. (MIRA 12:10)
(Barley--Fertilizers and manures) (Oats--Fertilizers and manures)
(Plants, Effect of potassium on)

KUDRIN, S.A., prof.

"Physics in agriculture" by I. B. Revut. Reviewed by S. A. Kudrin. Zemledelie 23 no.6:93-94 Je '61. (MIRA 14:6)
(Agricultural physics)
(Revut, I.B.)

KUDRIN, S.A., prof.

Translated literature on the use of fertilizers. Zemledelie 23 no.9:89-91 S '61. (MIRA 14:12)
(Fertilizers and manures)

KUDRIN, S.A., doktor sel'skokhozyaystvennykh nauk (Moskva)

Some considerations on methods for studying fertilizers.
Agrobiologiia no.5:756-768 S-O '62. (MIRA 15:11)
(Fertilizers and manures)

KUDRIN, S.A., prof.

"Short handbook on fertilizers" by N.D.Kazantseva and others. "Organic fertilizers and their use" by E.M.Bodrova and Z.D. Ozolina. Reviewed by S.A.Kudrin. Zemledelie 24 no.4:92-96 Ap '62. (MIRA 15:4)
(Fertilizers and manures) (Kazantseva, N.D.) (Bodrova, E.M.) (Ozolina, Z.D.)

KUDRIN, S.A., prof.

Reflections on three books. Zemledelie 24 no.7:94-96 Jl '62. (MIRA 15:12)

(Agriculture)

KUDRIN, S.A., prof.

"Trace elements in living nature" by A.I.Voinar. Reviewed by S.A.Kudrin. Zemledelie 25 no.2:89-90 F '63. (MIRA 16:5)
(Trace elements) (Voinar, A.I.)

PETERBURGSKIY, A.V., dots.; Prinimali uchastiye: ASAROV, Kh.K., dots.; GUKOVA, M.M., assistent; KUDRIN, S.A., prof., retsenzent; PRONIN, M.Ye., prof., retsenzent; GRACHEVA, V.S., red.; BALLOD, A.I., tekhn. red.

[Laboratory manual on agricultural chemistry] Praktikum po agrokhimii. Izd.2., perer. i dop. Moskva, Sel'khozgiz, 1952. 438 p. (MIRA 16:8)
(Agricultural chemistry--Laboratory manuals)

KUDRIN, S.A., prof.

Nutrition of plants as related to the use of fertilizers. Zemledelie 26 no.6:34-38 Je '64. (MIRA 17:8)

KURKIN, S.A.

Average composition of exchangeable bases in soils of the European part of the U.S.S.R. Pochvovedenie no.12:68-70 D '64.

(MIRA 18:2)

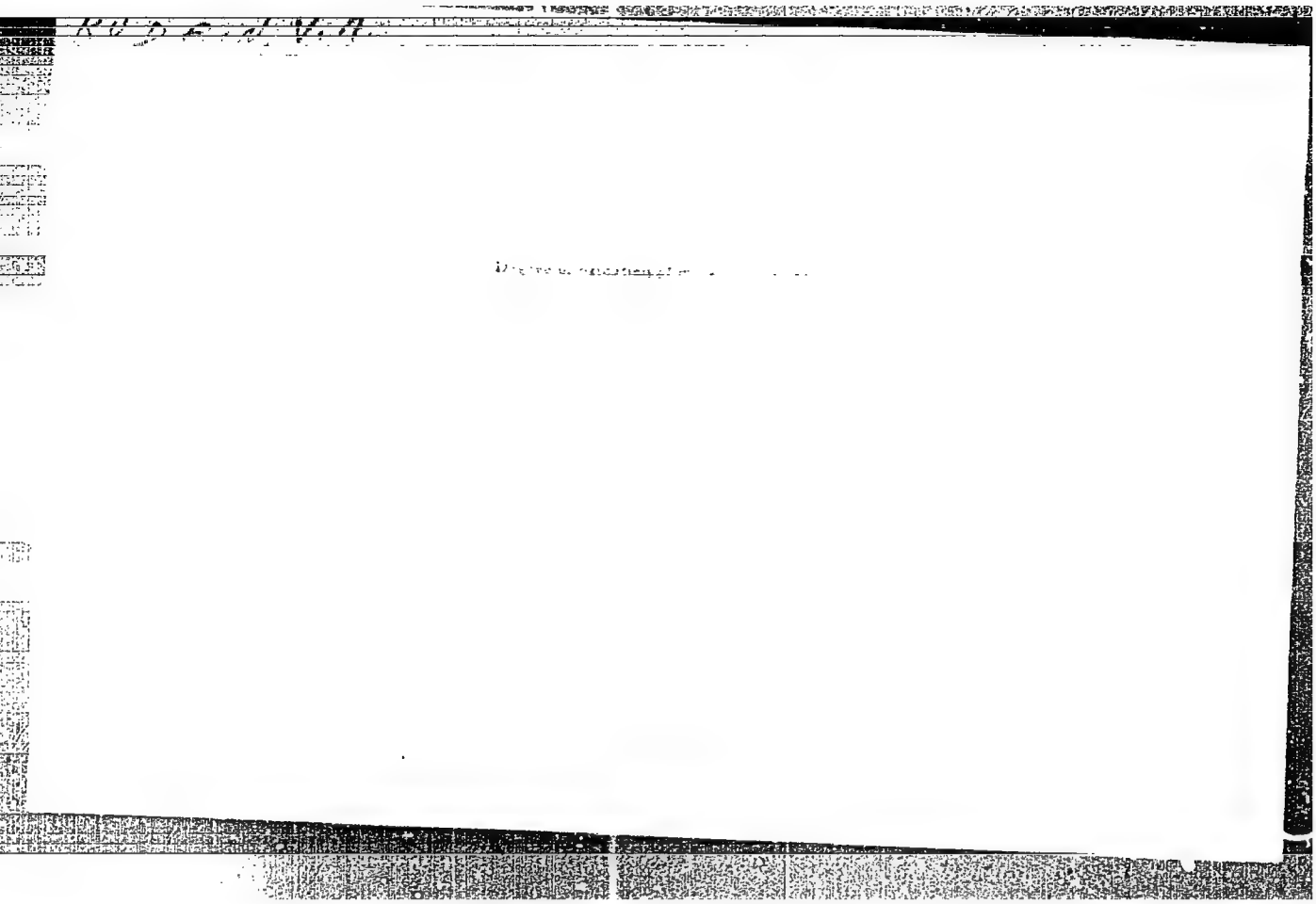
1. Vsesoyuznyy nauchno-issledovatel'skiy institut udobreniy i agropochvovedeniya, Moskva.

KUDRIN, S. N.

Using various concentrations of hydrochloric acid in field studies of carbonate rocks. Razved. i okh. nadr 28 no.5:47-50 My '62. (MIRA 15:10)

1. Irkutskiy nauchno-issledovatel'skiy institut redkikh metallov.

(Rocks, Carbonate—Analysis)
(Hydrochloric acid)



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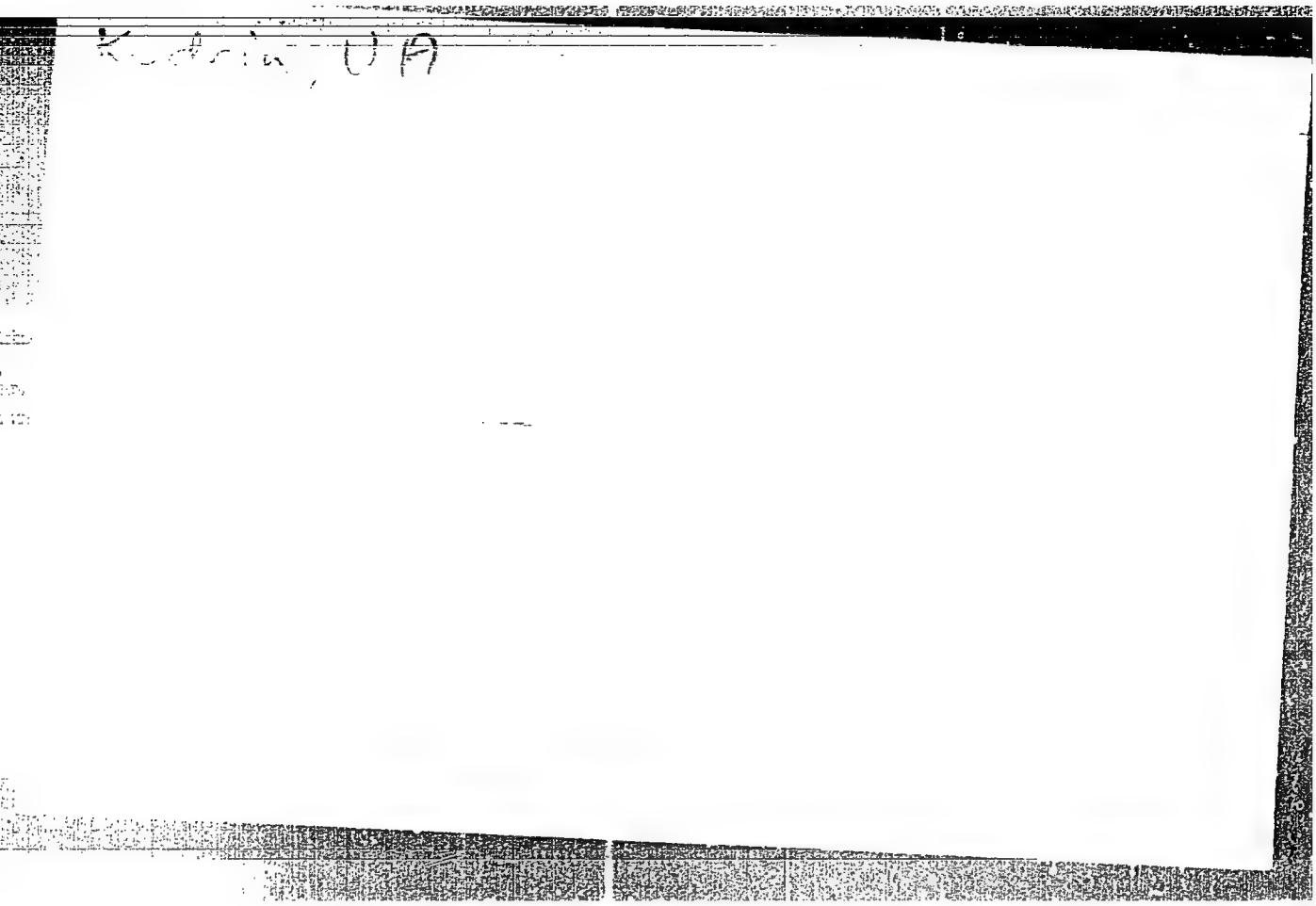

18(5) PHASE I BOOK EXPLOITATION SOV/2295

Moscow. Institut stali

Primeneniye kisloroda v staleplavil'nom proizvodstve (Use of Oxygen in Steelmaking) Moscow, Metallurgizdat, 1957. 418 p. (Series: Its: Sbornik, 37) Errata slip inserted. 3,500 copies printed.

Ed.: Ye. A. Borko; Ed. of Publishing House: Ya. D. Rozentsveyg; Tech. Ed.: Ye. B. Vaynshteyn; Editorial Board of the Institute: M.A. Glinkov, Doctor, Professor; R.N. Grigorash, Candidate of Technical Sciences, Docent; N.T. Gudtsov, Academician; V.P. Yelyutin, Doctor, Professor; A.A. Zhukhovitskiy, Doctor, Professor; I.N. Kidin, (Resp. Ed.) Doctor, Professor; B.G. Livshits, Doctor, Professor; A.P. Lyubimov, Doctor, Professor; I.M. Pavlov, Corresponding Member, Academy of Sciences, USSR; K.G. Trubin, Doctor, Professor; and A. N. Pokhvisnev, Doctor, Professor

PURPOSE: This collection of articles is intended for scientific, industrial, chemical, and metallurgical engineers, physicists and students.

COVERAGE: This book is a collection of scientific research papers on the utilizations of oxygen in steelmaking. The use of oxygen blast for the intensification of fuel combustion and the introduction of oxygen into liquid metal in order to oxidize admixtures are among the topics discussed. The use of oxygen in scrap-ore processes for making steel from pig iron with a high phosphorus content is also discussed. Several articles deal with the heating and processing fundamentals of steelmaking in a recirculation steel-melting furnace. Individual articles deal with the economics of steelmaking with oxygen-blast and the optimum conditions for effective utilization of oxygen. No personalities are mentioned. References follow each article.

Orlov, V.I. [Candidate of Technical Sciences], R.N. Ivanov, [Engineer], and Kh. D. Yerinin [Engineer]. Gas Content in the Open-hearth Bath 98

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The author describes comparative industrial tests of different stages of the open-hearth process with and without the use of oxygen.

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Abrosimov, Ye. V., V.A. Kudrin [Candidate of Technical Sciences], and O.I. Demin [Candidate of Technical Sciences, Docent]. Material and Heat Balances of the Open-hearth Scrap Process With Oxygen Blast 195

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Abrosimov, Ye. V., and V.A. Kudrin. Course of Carbon Oxidation in the Open-hearth Bath During Oxygen Blast 232

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Use of Oxygen in Steelmaking SOV/2295

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The author presents a method of decreasing rimming time to 4 to 5 minutes, thus increasing production by 5 to 10 percent

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The authors investigate the qualities of recirculation-furnace steels, comparing them with ordinary open-hearth steel.

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AUTHORS: Rudrin, V.A., Candidate of Technical Sciences, Tsurin, Ye.I., and Geenkin, Yu.M., Engineers

TITLE: An Efficient Deoxidation of Ball-bearing Steel in Acid Furnaces (Ratsional'noye raskisleniye sharikopodshipnikovoy stali v kislykh pechakh)

PERIODICAL: Stal', 1958, Nr 7, pp 606 - 607 (USSR)

ABSTRACT: This is a contribution to the previously published paper by P.P. Semenenko, M.M. Golovanov and I.G. Fedoyev - "On Smelting Ball-bearing steel in Acid Open-hearth Furnaces" (Stal', 1957, Nr 6). The present authors contribute their experience gained during the investigations of the problem by the MIS (Moscow Institute of Steel) in co-operation with the Metallurgical Combine imeni Serov. It was found that the maximum contamination of metal with inclusions during the smelting and teeming process is observed after its deoxidation in the furnace. An increase in non-metallic inclusions during deoxidation has a substantial influence on the contamination of the finished metal (Figure 1). The deoxidation with silico-calcium in the furnace contributes to a decrease in the contamination of metal by non-metallic inclusions.

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SOV/133-58-7-7/27

An Efficient Deoxidation of Ball-bearing Steel in Acid Furnaces

Optimum results were obtained when using 600 g/t of silico-calcium (Figure 2). Introducing into the furnace increased additions of aluminium increases the degree of contamination of the metal (Figure 3). There are 3 figures.

ASSOCIATION: Moskovskiy institut stali (Moscow Institute of Steel)

Card 2/2 1. Steel--Deoxidation 2. Open hearth furnaces--Applications

137-58-6-11668

Translation from Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 63 (USSR)

AUTHOR: Kudrin, V.A.

TITLE: Short-period Overoxidation of an Open-hearth Bath During Oxygen Blast (Kratkovremennoye pereokisleniye martenovskoy vanny pri produvke yeye kislorodom)

PERIODICAL: Sb. Mosk. in-t stali, 1957, Vol 37, pp 214-231

ABSTRACT: The investigation was conducted in a 70-t furnace with a bath depth of 700 mm, the scrap process being used. Oxygen is delivered into the metal by a 3/4" lance immersed 100-200 mm beneath the slag. [O] is determined by the alumina method. At the moment of blowing the bath with oxygen, there is a sharp rise in [O], as for instance from 0.005% before the blow to 0.015% after a 5-minute blow when [C] is 0.65%. The local overoxidation of the metal lasts for one or two minutes, after which the O content may be defined by [C] [%C] · [%O] = 0.0042+0.0025 [%C]. As temperature rises, the degree of overoxidation diminishes. When O_2 is used, (FeO) does not change, the change in the yield of molten metal being explained by evaporation of the Fe. A reduction in the content of gases

Card 1/2

137-58-6-11668

Short-period Overoxidation of an Open-hearth Bath During Oxygen Blast

and nonmetallic inclusions in the metal in "direct oxidation" of the bath is remarked upon.

A.S.

1. Ores--Processing 2. Oxygen--Applications 3. Open hearth furnaces--Performance

Card 2/2

137-58-6-11669

Translation from Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 63 (USSR)

AUTHORS: Abrosimov, Ye.V., Kudrin, V.A.

TITLE: The Course of the Carbon Oxidation Reaction When an Open-hearth Bath is Blown With Oxygen (Protekaniye reaktsii okisleniya ugleroda pri produvke martenovskoy vanny kislorodom)

PERIODICAL: Sb. Mosk. in-t stali, 1957, Vol 37, pp 232-251

ABSTRACT: An investigation is conducted in a 70-t furnace using the scrap process. Samples of metal are taken simultaneously at three levels of the bath by means of beakers welded to a curved bar. Oxygen is delivered to the bath at a pressure of 8-10 atm through a 3/4" iron lance inserted through the middle door directly into the metal, to a depth of 150-200 mm. The point at which the decarburization reaction is occurring is determined by the $[O]' - [O]''$ difference, where $[O]'$ is the observed O content and $[O]''$ is the equilibrium $[O]$ relative to C. The smaller this difference, the more intensive the combustion of the C at this point. In standard heats, the decarburization reaction proceeds primarily in the layer beneath the slag on fusion with low-heated metal and a large temperature

Card 1/2

The Course of the Carbon (cont.)

difference between the slag and the metal. As boiling continues, the reaction plane moves toward the bottom. When the bath is blown with oxygen, the reaction plane also moves from the stratum beneath the slag to the bottom, but the reaction proceeds predominantly in the middle of the bath. Bibliography 39 references.

A.S

1. Metals--Processing 2. Metals--Test methods 3. Oxygen--Applications

Card 2/2

SOV/137-58-7-14372

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 7, p 61 (USSR)

AUTHORS: Abrosimov, Ye.V., Kudrin, V.A., Demin, G.I.

TITLE: Balance of Materials and Heat When Oxygen is Used in Open-hearth Production With Solid-steel (Scrap) Charge (Material'nyy i teplovoy balans martenovskogo skrap-protsessa pri primenenii kisloroda)

PERIODICAL: Sb. Mosk. in-t stali, 1957, Vol 37, pp 195-213

ABSTRACT: 29 experimental heats were run with solid-steel (scrap) charge in 70-t heavy-oil fueled furnaces at the "Serp i Molot" ("Hammer and Sickle") Plant. In oxygen heats O_2 was applied in the jet, in cutting the charge upon fusion, and in direct oxidation of the bath. The total O_2 consumption was 30-38 m^3/t. The yield of molten steel in oxygen heats is 0.9-1.0% lower than in ordinary heats. The total loss of Mn is also higher in the first group of heats: 66.5% instead of 61.83%. The maximum and mean increase in output in use of O_2 by a combination of methods (the furnace having a conventional silica-brick roof) were, respectively, 51 and 26.4%, and fuel consumption was reduced by 24.6%. When O_2 was employed, the rate of

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SOV/137-58-7-14372

Balance of Materials and Heat When Oxygen is Used in Open-hearth (cont.)

oxidation of C during the charging and melting period was 50 to 100%, and during the working period, 100% higher than in ordinary heats.

A.S.

1. Open hearth furnaces--Performance 2. Steel--Production 3. Oxygen--Thermal effects 4. Fuels--Reduction

Card 2/2

SOV/137-58-9-18570

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 56 (USSR)

AUTHORS: Kudrin, V.A., Abrosimov, Ye.V.

TITLE: Possibilities of Reducing the Duration of the Pure "Boil" Stage by Means of Bubbling Oxygen Through the Molten Metal in an Open-hearth Furnace (Vozmozhnosti sokrashcheniya perioda chistogo kipeniya pri produvke martenovskoy vanny kislorodom)

PERIODICAL: Sb. Mosk. in-t stali, 1957, Vol 37, pp 252-259

ABSTRACT: When O_2 is blown through the molten metal in an open-hearth furnace, the rate of oxidation of C is increased several times. In the process, as investigations have demonstrated, the zone in the center of the bath of molten metal participates in the decarbonization reaction and the conditions for degasification of metal become more favorable. The local overoxidation of metal, observed during blowing in the area where the O_2 enters (analogous to the overoxidation which occurs when Fe ore is added to the molten metal), is of very short duration. In contrast with common ore boiling, in the course of which the oxidizing effect of the ore is apparent for a considerably

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Possibilities of Reducing the Duration of the Pure "Boil" Stage (cont.)

greater length of time, the O content in the molten metal diminishes in but 1 or 2 minutes to a level commonly observed during pure boiling when O_2 blowing is employed. No increase in Fe content in the slag is observed in the process. Experimental smeltings, carried out in the 70-ton open-hearth furnaces with chrome-magnesite crowns at the "Serp i molot" (Hammer and Sickle) plant and characterized by a short pure-boiling stage (4-5 min) with O_2 bubbling, did not reveal any adverse effects on the quality of metal. Reducing the duration of the pure-boiling stage to 5-10 minutes increases the production of a furnace by 5-10%.

Yu.N.

1. Open hearth furnaces--Performance 2. Oxygen--Metallurgical effects 3. Iron ores --Applications 4. Industrial production--Development

Card 2/2

KUDRIN, V.Ye., kand.tekhn.nauk, dotsent; TYURIN, Ye.I., inzh.; NECHKIN, Yu.M., inzh.; ABROSIMOV, Ye.V., kand.tekhn.nauk

Smelting of ball-bearing steel in acid open-hearth furnaces. Izv.vys.ucheb.zav.; chern.met. no.6:35-46 Je '58. (MIRA 12:8)

1. Moskovskiy institut stali. Rekomendovano kafedroy metallurgii stali Moskovskogo instituta stali.

(Open-hearth process) (Bearing metals)

AUTHOR, etc.

PHASE I BOOK EXPLOITATION SOV/4782

Moscow. Institut stali

Proizvodstvo i obrabotka stali i splavov (Production and Treatment of Steel and Alloys) Moscow, Metallurgizdat, 1960. 462 p. (Series: Its: Sbornik, 39) 2,100 copies printed.

Ed.: Ye. A. Borko; Ed. of Publishing House: S. L. Zinger; Tech. Ed.: M. R. Kleynman; Editorial Council of the Institute: M. A. Glinkov, Professor, Doctor of Technical Sciences; R. N. Grigorash, Docent, Candidate of Technical Sciences; V. P. Yelyutin, Professor, Doctor of Technical Sciences; A. A. Zhukhovitskiy, Professor, Doctor of Chemical Sciences; I. N. Kidin, Professor, Doctor of Technical Sciences; B. G. Livshits, Professor, Doctor of Technical Sciences; A. P. Lyubimov, Professor, Doctor of Technical Sciences; I. M. Pavlov, Corresponding Member, Academy of Sciences USSR; and A. N. Pokhvisnev, Professor, Doctor of Technical Sciences.

PURPOSE: This book is intended for technical personnel in industry, scientific institutions and schools of higher education, dealing with open-hearth and electric-furnace steelmaking, metal rolling, physical metallurgy, metallography, and heat treatment. It may

Card 1/10

also be used by students specializing in these fields.

COVERAGE: The book contains results of theoretical and experimental investigations of metallurgical and heat-engineering processes in open-hearth and electric furnaces. Data are included on the following: desulfurizing of pig iron outside the blast furnace, interaction of oxides of the carbide-forming metals with solid carbon, the change of content of gases in the bath of the open-hearth furnace in various periods of melting, intensification of the electric melting of steel, etc. Other articles deal with the nonuniformity of deformation in rolling, the study of the continuous rolling process, the dependence of the friction—slippage coefficients in rolling on a number of factors, and other problems in the pressworking of metals. Articles on physical metallurgy and the theoretical principles and techniques of the heat treatment of steel are also included. No personalities are mentioned. References accompany most of the articles. There are 207 references, both Soviet and non-Soviet.

TABLE OF CONTENTS:

Sobolev, S. K., Engineer, V. A. Kudrin, Candidate of Technical Sciences, G. N. Oyks and K. G. Trubin, Doctors of Technical Sciences [Department of Metallurgy of Steel]. Desulfurizing Pig Iron outside the Blast Furnace by Lime With the Addition of Aluminum Powder 5

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Oyks, G. N., O. A. Barbashin, Engineer, and V. P. Kaltygin, Engineer [Department of Metallurgy of Steel]. Change in Steel Composition During the Teeming Process 40

Card 3/10

S/130/60/000/006/006/011

AUTHORS: Kudrin, V. A., Nechkin, Yu. M., Tyurin, Ye. I., Abrosimov, Ye. V.

TITLE: Experiments on Compressed-Air Blow of Metal in Acid Open Hearth Furnaces

PERIODICAL: Metallurg, 1960, No. 6, pp. 17-18

TEXT: Blowing of the metal pool in open-hearth process may be successfully performed by replacing oxygen by compressed air. To reveal the special features in the technology of steel melting in an acid furnace with blowing of the pool, a number of melts using compressed air, were performed at one of the Ural plants. The experiments were made on 85-ton acid open-hearth furnaces with a hearth surface of 27-28 m^2 and 860-mm deep metal pool; blast furnace gas and mazut were used as fuels; the tests were carried out on ШХ-15 (ShKh15) steel with limited silicon reduction. The bubbling time was 2-3 hours. Iron tubes of 1 inch in diameter and 4-6m length were employed for the blast. The pressure of compressed air was 4-6 atm, and its consumption was about 500-700 nm^3/hour. Changes in the composition of the metal and the slag of one experimental smelt are given in a graph. It was established that air blast employed for an acid open hearth pool increased the burning-out rate of carbon up to 0.75% C/hr,

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Experiments on Compressed-Air Blow of Metal in Acid Open-Hearth Furnaces

caused a sharp increase in the metal temperature during the blast and reduced the time of bubbling without impairing the metal quality. Blowing of the pool eliminates the use of scarce pure iron ore with respect to P and S content and the contamination of the steel by alumina. The described method reduces the period of the passive pool state prior to active bubbling. There are 1 graph and 1 table.

ASSOCIATION: Moskovskiy institut stali (Moscow Steel Institute)

Card 2/2

KUDRIN, V.A.; OYKS, G.N.; SOROKIN, S.P.; NECHKIN, Yu.M.; GLUSHTSOV, M.V.; NAM, B.P.; LAPSHOVA, M.P.; YUDSON, A.A.; PETRENKO, O.D.; ADRIANOVA, V.P.

Smelting high-grade steel in open-hearth furnaces fired with natural gas. Stal' 20 no. 7:599-602 Jl '60. (MIRA 14:5)
(Open-hearth furnaces--Equipment and supplies)

KUDRIN, V.A.; MECHKIN, Yu.M.; TYURIN, Ye.I.; ABROSIMOV, Ye.V.

Determining the contamination of the ShKh15 steel by nonmetallic oxide inclusions. Zav.lab. 26 no.6:732-733 '60. (MIRA 13:7)

1. Moskovskiy institut stali.
(Steel—Metallography) (Oxides)

SOBOLEV, S.K., inzh.; KUDRIN, V.A., kand.tekhn.nauk; OYKS, G.N., doktor tekhn.nauk; TRUBIN, K.G., doktor tekhn.nauk, V rabote prinimali uchastiye; BLIZNYUKOV, S.A.; ROZHKOV, I.M.; MALYSHEV, V.S.

Desulfuration of pig iron outside the blast furnace by lime with the addition of aluminum powder. Sbor.Inst.stali no.39:5-15 '60. (MIRA 13:7)

1. Kafedra metallurgii stali Moskovskogo ordena Trudovogo Krasnogo Znameni instituta stali im. I.V.Stalina.
(Cast iron—Metallurgy) (Desulfuration)

KUDRIN, V.A.

SOV/5556

PHASE I BOOK EXPLOITATION

Moscow. Institut stali.

Novoye v teorii i praktike proizvodstva martenovskoy stali (New [Developments] in the Theory and Practice of Open-Hearth Steelmaking) Moscow, Metallurgizdat, 1961. 439 p. (Series: Trudy Mezhvuzovskogo nauchnogo soveshchaniya) 2,150 copies printed.

Sponsoring Agency: Ministerstvo vysshego i srednego spetsial'nogo obrazovaniya RSFSR. Moskovskiy institut stali imeni I. V. Stalina.

Eds.: M. A. Glinkov, Professor, Doctor of Technical Sciences, V. V. Kondakov, Professor, Doctor of Technical Sciences, V. A. Kudrin, Docent, Candidate of Technical Sciences, G. N. Oyks, Professor, Doctor of Technical Sciences, and V. I. Yavoyskiy, Professor, Doctor of Technical Sciences; Ed.: Ye. A. Borko; Ed. of Publishing House: N. D. Gromov; Tech. Ed.: A. I. Karasev.

PURPOSE: This collection of articles is intended for members of scientific institutions, faculty members of schools of higher education, engineers concerned with metallurgical processes and physical chemistry, and students specializing in these fields.

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New [Developments] in the Theory (Cont.) SOV/5556

COVERAGE: The collection contains papers reviewing the development of open-hearth steelmaking theory and practice. The papers, written by staff members of schools of higher education, scientific research institutes, and main laboratories of metallurgical plants, were presented and discussed at the Scientific Conference of Schools of Higher Education. The following topics are considered: the kinetics and mechanism of carbon oxidation; the process of slag formation in open-hearth furnaces using in the charge either ore-lime briquets or composite flux (the product of calcining the mixture of lime with bauxite); the behavior of hydrogen in the open-hearth bath; metal desulfurization processes; the control of the open-hearth thermal melting regime and its automation; heat-engineering problems in large-capacity furnaces; aerodynamic properties of fuel gases and their flow in the furnace combustion chamber; and the improvement of high-alloy steel quality through the utilization of vacuum and natural gases. The following persons took part in the discussion of the papers at the Conference: S.I. Filippov, V.A. Kudrin, M.A. Glinkov, B.P. Nam, V.I. Yavoyskiy, O.N. Oyks and Ye. V. Chelishchev (Moscow Steel Institute); Ye. A. Kazachkov and A. S. Kharitonov (Zhdanov Metallurgical Institute); N.S. Mikhaylets (Institute of Chemical Metallurgy of the Siberian Branch of the Academy of Sciences USSR); A.I. Stroganov and D. Ya. Povolotskiy (Chelyabinsk Polytechnic Institute); P.V. Umrikhin (Ural Polytechnic Institute); I.I. Fomin (the Moscow "Serp i molot" Metallurgical Plant); V.A. Fuklev (Central Asian Polytechnic Institute)

Card 2/14

and M.I. Beylinov (Night School of the Dneprodzerzhinsk Metallurgical Institute). References follow some of the articles. There are 268 references, mostly Soviet.

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Yavoyskiy, V. I. [Moskovskiy institut stali - Moscow Steel Institute]. Principal Trends in the Development of Scientific Research in Steel Manufacturing 7

Filippov, S. I. [Professor, Doctor of Technical Sciences, Moscow Steel Institute]. Regularity Patterns of the Kinetics of Carbon Oxidation in Metals With Low Carbon Content 15
[V. I. Antonenko participated in the experiments]

Levin, S. L. [Professor, Doctor of Technical Sciences, Dnepropetrovskiy metallurgicheskiy institut - Dnepropetrovsk Metallurgical Institute].

Kapustin, Ye. A. [Docent, Candidate of Technical Sciences, Zhdanov Metallurgical Institute]. Aerodynamic Properties of Fuel Gases and Their Flow in the Combustion Chamber of an Open-Hearth Furnace 271

Kudrin, V.A. [Docent, Candidate of Technical Sciences], O.N. Oyks, O.D. Petrenko, A.A. Yudson, Yu. M. Nechkin, B.P. Nam, [Engineers], I.I. Ansheles [Docent, Candidate of Technical Sciences], R.M. Ivanov [Candidate of Technical Sciences], and V.P. Adrianova [Engineer]. Special Features of Making High-Quality Steel in Natural-Gas-Fired Open-Hearth Furnaces 280

Butakov, D.K. [Docent], L.M. Mel'nikov [Engineer], A.M. Lirman, V.D. Budennyy, P.P. Babich, and A.I. Sinkevich [Ural Polytechnic Institute, Zavod im. Ordzhonikidze Chelyabinskogo sovnarkhoza - Plant imeni Ordzhonikidze of the Chelyabinsk Sovnarkhoz]. Special Features of Making Steel in Open-Hearth Furnaces With Magnesite-Chromite [Brick] Roofs 290

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ABROSIMOV, Yevgeniy Vasil'yevich; ANSHELES, Il'ya Iosifovich; KUDRIN, Viktor Aleksandrovich; KHYAKOVSKIY, Yuriy Vasil'yevich; ORLOV, Vladimir Ivanovich; YAVOYSKIY, V.I., prof., doktor tekhn. nauk, nauchnyy red.; GROMOV, N.D., red. izd-va; MIKHAYLOVA, V.V., tekhn. red.

[Metallurgy of steel; general course] Metallurgiia stali; obshchii kurs. By E.V.Abrosimov i dr. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1961. 679 p. (MIRA 14:10)
(Steel--Metallurgy)

S/137/61/000/011/021/123
A060/A101

AUTHORS: Kudrin, V. A., Oyks, G. N., Petrenko, O. D., Yudson, A. A., Nechkin, Yu. M., Nam, V. P., Ansheles, I. I., Ivanov, R. M., Adrianova, V. P.

TITLE: Characteristic features of the smelting technology for high-quality steel with heating of open hearth furnaces by natural gas

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 11, 1961, 30, abstract 11V192 (V sb.: "Novoye v teorii i praktike proiz-va martenovsk. stali". Moscow, Metallurgizdat, 1961, 280 - 289. Discuss. 332 - 334)

TEXT: An investigation carried out upon 140-ton open hearth furnaces operating on the scrap process and heated by a mixture of natural gas and mazut, has shown that in operating with the gas-mazut mixture the smelting duration is increased on account of the reduction in the heat-transfer as result of slag frothing, which occurs with greatest intensity at the end of the smelting period. The frothy slag hinders the active transfer of O_2 from the gas atmosphere leading to a lowering in V_c and the accumulation of Fe_2O_3 at the upper levels of the slag. Thus, the Fe_2O_3 content in the surface layer of the slag turned out to be greater by a factor of 1.5 than in heats fueled by mazut only. Simultaneously

Card 1/2

Characteristic features of the...

with the lowering of V_c the process of hydrogen-saturation of the metal is intensified. It was discovered that the principal place where the metal was being saturated with hydrogen is the run-off cap, since at the feed-in cap the slag thickness is small, the metal is bubbling intensely, the degasification is proceeding, while at the run-off cap the metal, covered by a thick layer of slag froth, bubbles poorly, and the metal is being saturated with hydrogen. This is promoted by an increase in the water-vapor content of the combustion products when the gas-mazut mixture is utilized. The increased H_2 content of the metal is supported by crushing tests to determine flaking sensitivity. Metal smelted by the use of gas-mazut mixture has an increased tendency to flaking and lowered ductility characteristics.

Yu. Nechkin

[Abstracter's note: Complete translation]

S/137/61/000/011/025/123
A060/A101

AUTHORS: Kudrin, V. A., Nechkin, Yu. M., Tyurin, Ye. I., Abrosimov, Ye. V.

TITLE: Technology of acid open-hearth smelting

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 11, 1961, 38, abstract 11V229 (V sb.: "Novoye v teorii i praktike proiz-va martenovsk. stali". Moscow, Metallurgizdat, 1961, 299 - 304. Discuss. 332 - 334)

TEXT: Under normal operation of an acid open-hearth furnace with solid charge, the slag composition is regulated by the fettling of the furnace independently of the type of the process and the charge composition. The quantity of the slag is determined by the quality of the fettling and the composition of the charge and depends mainly upon the Mn content of the charge. As the Mn content of the charge increases, both when operating with reversible slag and when operating without it, the quantity of slag increases sharply. Thus, when the Mn content of the charge is 0.3 - 0.4% the quantity of slag after the melting constitutes 2 - 3%, for 1.2 - 1.4% Mn content the quantity of slag increases up to 5 - 5.5%. Silicon from the fettling is expended in the slagging of the MnO, and thus in operating without reversible slag, up to the moment of melting the slag consists, in amount

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of 40 - 50%, of the material of the furnace hearth and walls. In operating with reversible slag this figure is reduced to 10 - 20%. The expenditure of charging materials is also reduced correspondingly. The presence of 0.8 - 0.9% Mn in the charge promotes the production of metal with a lower silicate impurity content, and a higher Mn content is inexpedient since it leads to an increase in the quality of slag and correspondingly to an increase in the expenditure of charging materials and the burn-off of Mn and Fe. A further increase of SiO_2 content in the slag during the process of ebullition occurs as result of the reduction of Si from the hearth and its oxidation at the metal-slag interface, as supported by the experimental data as to the presence of a gradient in the Si-concentration as a function of the vat depth. An increase in SiO_2 content of the slag leads to a reduction in the fluidity of the slag and the rate of O_2 flow from the atmosphere of the furnace through the slag into the metal. By adding FeO, MnO, CaO, the activity of the slag and the oxidation rate of the Si may be equal to its reduction rate from the hearth. The type of the process - with Si reduction and without it - has a considerable effect upon the composition of the nonmetallic impurities and upon the process of their elimination.

[Abstracter's note: Complete translation]

Yu. Nechkin

NAM, B.P.; OYKS, G.N.; KUDRIN, V.A.; MECHKIN, Yu.M.

Hydrogen behavior in open-hearth furnace baths fired with natural gas. Izv. vys. ucheb. zav.; chern. met. no.1:56-64 '61. (MIRA 14:2)

1. Moskovskiy institut stali.
(Open-hearth furnaces—Combustion)
(Steel—Hydrogen content)

S/130/61/000/003/002/008
A006/A001

AUTHORS: Kudrin, V.A., Vinnichenko, Ye.V., Sviderskiy, G.V., Tunkov, V.P., Sokolov, O.N.

TITLE: Processing of Liquid Steel With Solid Synthetic Mixtures

PERIODICAL: Metallurg, 1961, No. 3, pp. 16 - 17

TEXT: A series of experimental heats were carried out on furnaces of an open-hearth shop at the "Serp i molot" plant. The investigation was made for the purpose of revealing the possibility and expediency of treating steel with solid synthetic mixtures. The following composition of a desulfurizing mixture was selected (in %): Freshly burnt lime 70 - 75; fluorspar 25 - 28; crushed aluminum 0 - 4. The consumption was 8 - 11 kg/ton of steel. The components of the mixture were crushed manually, and fluorspar was preheated in a mold. The mixture was supplied to the metal jet when leaving the furnace, partly from a bin with 45% ferrosilicon, partly by hand. Data given in Table 1 show that the sulfur content was reduced by 28% on the average, after treating the metal with the synthetic mixture, in relation to the sulfur content prior to that. Desulfurization process is somewhat intensified at a higher carbon content. An analysis of results ob-

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Processing of Liquid Steel With Solid Synthetic Mixtures

tained from the experiments has shown that the content of non-metallic impurities in the metal that was treated with the mixture or not treated, is equal. CaO was not revealed in the impurities. An analysis of the experimental heat metal, as to the hydrogen content depending on the moisture of the mixture, shows that a moisture up to 1.5% H_2O, does practically not affect the hydrogen content in the metal. Results of mechanical tests are given in Table 2. It was found that the efficiency of open hearth furnaces can be raised by 10-15% when treating high-quality instrument steel with synthetic mixtures. This is due to a reduced bubbling time required to assure metal desulfurization in heats of conventional technology. The cost price of steel is correspondingly reduced by 2 - 2.5%. The degree of desulfurization depends only slightly on the sulfur content in the ladle prior to treatment. It decreases in the case when the heat is teemed at the lowest metal temperature limit for the given jet, to prevent metal splashing in case that components of higher moisture should fall into the ladle. Supply of the mixture should be started after teeming into the ladle about one fourth of the heat; it should be completed prior to the formation of slag. The mixture can not be supplied to the ladle bottom prior to teeming the heat, because of safety conditions.

S/130/61/000/003/002/008
A006/A001

Processing of Liquid Steel With Solid Synthetic Mixtures

Table 1

Results of chemical analyses of samples and the degree of desulfurization

Number of Heat	Steel	Content, % C	Mn	P	Content, % S prior to treatment	S after treatment	Desulfurization degree, %
54468	У12А	1,22	0,18	0,008	0,027	0,018	33,4
54477	У8А	0,87	0,26	0,008	0,020	0,015	25,0
54528	У8А	0,85	0,24	0,010	0,020	0,012	40,0
54577	У8А	0,85	0,25	0,010	0,024	0,018	25,0
63109	У8А	0,72	0,23	0,010	0,025	0,018	25,0
63135	У10А	0,95	0,19	0,010	0,028	0,020	28,6
54697	Ст. 5	0,37	0,56	0,010	0,030	0,023	23,4
54700	У12А	1,15	0,20	0,010	0,024	0,018	25,0
54761	20	0,17	0,40	0,012	0,030	0,024	20,0
54777	20	0,18	0,47	0,012	0,037	0,030	19,0
54804	20	0,17	0,65	0,016	0,037	0,025	32,4
54808	40	0,39	0,34	0,018	0,038	0,026	31,6
63257	У8А	0,82	0,18	0,010	0,030	0,019	36,8
63262	20	0,23	0,54	0,010	0,036	0,028	22,8

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Processing of Liquid Steel With Solid Synthetic Mixtures

Table 2: Mechanical properties of the metal

Heat	Ultimate strength kg/mm^2	Yield limit kg/mm^2	Relative elongation %	Relative constriction %
Treated with mixture	48,1	38,0	31,4	63,2
Non-treated	48,2	36,0	29,4	59,6

There are 2 tables.

ASSOCIATION: Moskovskiy institut stali (Moscow Steel Institute), Zavod "Serp i Molot" ("Serp i molot" Plant)

Card 4/4

NAM, B.P.; OYKS, G.N.; KUDRIN, V.A.; NECHKIN, Yu.M.

Factors determining hydrogen content in finished steel.
Izv. vys. ucheb. zav.; chern. met. 4 no.7:55-61 '61.
(MIRA 14:8)

1. Moskovskiy institut stali.
(Steel--Hydrogen content)

NAM, B.P.; OYKS, G.N.; KUDRIN, V.A.; NECHKIN, Yu.M.

Effect of hydrogen concentration in final open-hearth furnace slag on changes in hydrogen content of the metal during its tapping and pouring. Izv.vys.ucheb.zav.; chern.met. 4 no.9: 54-58 '61. (MIRA 14:10)

1. Moskovskiyinstitut stali.
(Steel—Hydrogen content) (Slag--Analysis)

KUDRIN, V.A.; VINNICHENKO, Ye. V.; SVIDERSKIY, G.V.; TUNKOV, V.P.; SOKOLOV, O.N.

Treatment of liquid steel by means of solid synthetic mixtures.
Metallurg 6 no.3:16-17 Mr '61. (MIRA 14:5)

1. Moskovskiy institut stali i zavod "Serp i molot."
(Steel--Metallurgy)

KOZLOV, Lev Ivanovich, inzh.; LEVITAN, Solomon Solomonovich, inzh.; KUROCHKIN, Boris Nikolayevich, kand. tekhn.nauk; CHERNENKO, Mikhail Avksent'yevich, inzh.; KUDRIN, Viktor Aleksandrovich, kand.tekhn. nauk; TARSHIS, D.M., red. izd-va; ATTOPOVICH, M.K., tekhn. red.

[Use of natural gas in open-hearth furnaces]Primenenie prirodnogo gaza v martenovskikh pechakh. [By] L.I.Kozlov i dr. Moskva, Metallurgizdat. 1962. 158 p. (MIRA 15:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut metallurgicheskoy teplotekhniki (for Kurochkin). 2. Gosudarstvennyy soyuznyy proyektnyy institut Ministerstva chernoy metallurgii (for Kozlov, Levitan, Chernenko, Kudrin).
(Open-hearth furnaces) (Gas, Natural)

KUDRIN, V.A.; NECHKIN, Yu.M.; NAM, B.P.

Accelerating open-hearth furnace operations. Metallurg 8 no.5: 8-9 My '63. (MIRA 16:7)

(Open-hearth furnaces)

NECHKIN, Yu.M.; KUDRIN, V.A.; YAVOYSKIY, V.I.

Effect of the basicity of open-hearth furnace slags on their tendency to foam. Izv. vys. ucheb. zav.; chern. met. 7 no.3: 53-56 '64. (MIRA 17:4)

1. Moskovskiy institut stali i splavov.

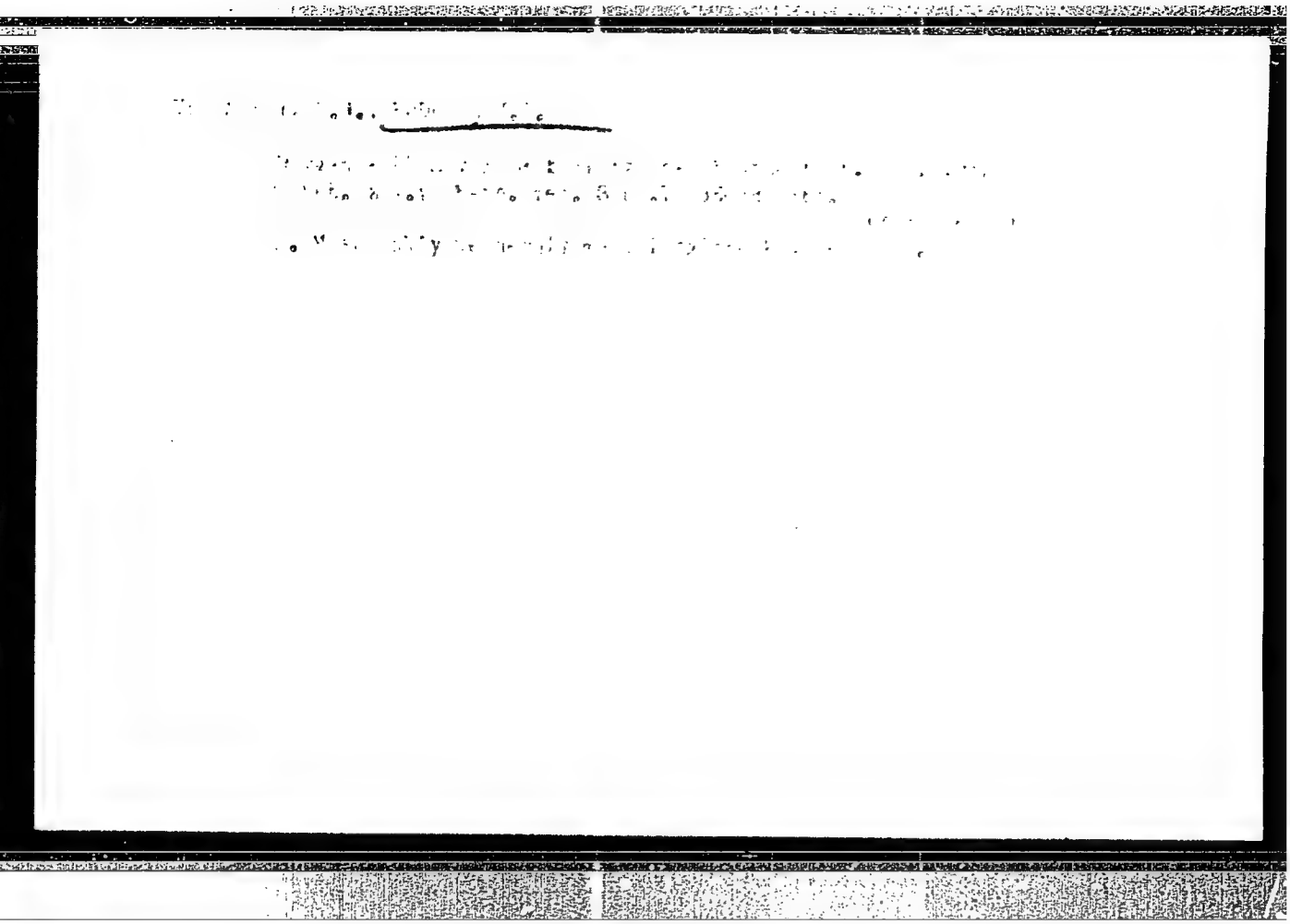
KODRIN, V.A., ANDRIANOV, S.M., NECHKIN, Yu.M., SOLOMIN, S.P., TYURIN, Ye.I., TARCHOVA, M.P., YUDSON, A.A., POPOV, Ye.S.

Performance of a 30 ton open-hearth furnace with a roof gas and oxygen burner. Metallurg 10 no.1:13-16 Ja '65.
(MIRA 18:4)

YAVOYSKIY, V.I., otv. red.; BIGEYEV, A.M., red.; BORKO, Ye.A., red.; GLINKOV, M.A., red.; ZARVIN, Ye.Ya., red.; KAPUSTIN, Ye.A., red.; KOCHO, V.S., red.; KUDRIN, V.A., red.; LAPITSKIY, V.I., red.; LEVIN, S.L., red.; OYKS, G.N., red.; ROMENETS, V.A., red.; UMRIKHIN, P.V., red.; FILIPPOV, S.I., red.

[Theory and practice of the intensification of processes in converters and open-hearth furnaces; transactions] Teoriia i praktika intensifikatsii protsessov v konverterakh i martenovskikh pechakh; trudy. Moskva, Metallurgiia, 1965. 552p. (MIRA 18:10)

1. Mezhvuzovskoye nauchnoye soveshchaniye po teorii i praktike intensifikatsii protsessov v konverterakh i martenovskikh pechakh. 2. Moskovskiy institut stali i splavov (for Filippov). 3. Zhdanovskiy metallurgicheskiy institut (for Kapustin). 4. Ural'skiy politekhnicheskiy institut (for Umrikhin).



1. ROZHANSKIY, A.G., Eng. KUDRIN, V.B.

2. USSR (600)

4. Metalwork

7. Standard plants with a capacity of 20 and 40 thousand tons of metal structural units per year. Stroi prom No 1 1953.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

S/181/63/005/003/033/046
B102/B180

AUTHORS: Kirgintsev, A. N., Kudrin, V. D., and Kudrina, K. N.

TITLE: Mathematical theory of zone recrystallization of binary systems

PERIODICAL: Fizika tverdogo tela, v. 5, no. 3, 1963, 928-935

TEXT: The zone recrystallization of a binary system is investigated on the basis of the law $\lambda = \frac{N_2'}{N_2''}\frac{N_1''}{N_1'} = \text{const}$, governing the phase diagram. Instead of the molar ratios, the quantities of the phases of the two components can also be used to define λ: $c_2'/c_2'' = \lambda\, c_1'/c_1''$, which also holds for an infinitesimal interface (dl) so that

$$\frac{dc_2'}{c_2'} = \lambda\frac{dc_1'}{c_1'}, \quad \frac{dc_2'}{dc_1'} = \frac{1-N_2}{N_2}, \quad \frac{1-N_2}{N_2} = \lambda\frac{c_2'}{c_1'}.$$

A bar of length L+b is considered for which

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$$c_i^* = \int_0^{l+1} N_{n-1}\,dl - \int_0^{l} N_n\,dl, \qquad (7)$$

$$c_i^* = \int_0^{l+1} (1-N_{n-1})\,dl - \int_0^{l} (1-N_n)\,dl. \qquad (8)$$

The limiting concentration can be described by

$$\frac{dN(p)}{dp} = \frac{1}{\lambda}[N(p+1)-N(p)][1-(1-\lambda)N(p)]^p, \qquad (21)$$

obtained from

$$\frac{1-N_n}{N_n} = \lambda\frac{1-F}{F}, \quad F = \int_0^{p+1} N_{n-1}\,dp - \int_0^{p} N_n\,dp \quad \cdot\frac{1}{l} = d$$

This, in the form

Mathematical theory of zone ...

$$\frac{dN_n(p)}{dp}=\frac{1}{\lambda}[1-(1-\lambda)N_n(p)]^2[N_{n-1}(p+1)-N_n(p)] \qquad (22)$$

with the boundary condition

$$N_n(0)=\frac{\int_0^1 N_{n-1}(p)\,dp}{\lambda+(1-\lambda)\int_0^1 N_{n-1}(p)\,dp}. \qquad (23)$$

was processed on an electronic computer for $0 < \lambda < 1$. The results are shown graphically as $S_n = f(n)$ of $g(p)$; the area S_n is defined in Fig 1 which represents zone refining for $\lambda > 1$. For $N_n < 1$

$$1-N_n=\lambda\left[\int_0^{p+1}(1-N_{n-1})\,dp-\int_0^p(1-N_n)\,dp\right], \qquad (25).$$

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which is simplified for $1-N_{n-1}=1-N_n=1-N$: $1 - N = A \int_p^{p+1} (1-N)dp$ and according to Pfann $1-N = A \exp(Bp)$ where $e^B=1+B/A$. Numerical results are given and discussed for 500 passages. There are 7 figures.

ASSOCIATION: Institut neorganichcskoy khimii (Institute of Inorganic Chemistry); Institut matematiki SO AN SSSR, Novosibirsk (Institute of Mathematics of SO AS USSR, Novosibirsk)

SUBMITTED: June 13, 1962 (initially)
November 17, 1962 (after revision)

Mathematical theory of zone ...

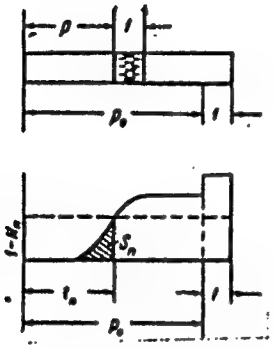

Fig. 1

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S/181/63/005/003/034/046
B102/B180

AUTHORS: Kirgintsev, A. N., Kudrin, V. D., and Kudrina, K. N.

TITLE: Electronic computer solution to the problem of the movement of impurity bands in zone refining of a finite ingot

PERIODICAL: Fizika tverdogo tela, v. 5, no. 3, 1963, 936-941

TEXT: It is shown how the problem of zone refining can be prepared and solved with a computer. The features of the movement of impurity bands on successive passes of the melted zone are considered in particular. Considering an ingot of length L+b, where b is the length of the melted zone, with an impurity concentration at a distance l from the end after n passages given by $x_n(l) = dc_2^1/dl$, the relative impurity concentration can be given by

$$y_n = \lambda\left[\int_0^{p+1} y_{n-1}dp - \int_0^p y_n dp\right], \qquad (4)$$

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for the second part of the ingot (at distance p_0) from the end

$$y_0 = y_0(p_0)(1 + p_0 - p)^{\lambda-1}, \quad (5)$$

where

$$\frac{q}{7} = \alpha d : \frac{q}{l} = d : \frac{\alpha x}{(l)\alpha x} = \alpha\beta : \frac{q}{q_0} = \alpha x \quad (2)$$

This kind of equation can already be solved by digital computer; this was done for the separation factor λ values 2, 1.5, 1, 0.8, 0.5 and 0.1. The distribution functions obtained have Gaussian shape, therefore the applicability of the equation $y_n = h \exp\left[-a(p_m - p)^2\right]$ was also checked. Its accuracy was found to be inadequate, but if two, instead of one, equation of that type were used (replacing a once by a_1 and once by a_2), accuracy is satisfactory. For $\lambda > 1$ the limiting distribution is determined according to Pfann: $y = A \exp(Bp)$. For large distances p_0, $A \approx -B$ and

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S/181/63/005/003/034/046
B102/B180

Electronic computer solution to the ...

$y = -B\exp(Bp)$. B is defined by the relation $\lambda = B/(e^B-1)$. B is tabulated for $0 < \lambda < 3.0$. There are 6 figures and 2 tables.

ASSOCIATION: Institut neorganicheskoy khimii (Institut of Inorganic Chemistry); Institut matematiki SO AN SSSR, Novosibirsk (Institute of Mathematics of SO AS USSR, Novosibirsk)

SUBMITTED: June 13, 1962 (initially)
November 17, 1962 (after revision)

Card 3/3

BAREH, A. S.; GOLOV, G. A.; ZUBAVIN, V. V.; MURAKHOVSKIY, K. I.; RUBIN, S. A.; SOKOLINA, Ye. I.; TIKHOMIROV, Ye. P.

"Physiological reactions of the human organism to transverse accelerations and means of raising the resistance to such forces."

report presented at the 15th Intl Astronautical Cong, Warsaw, 7-12 Sep 64.

KUDRIN, V.D., inzhener.

Pneumatic-mechanical furnace for burning milled peat. Prom. energ. 12 no.6:11-14 Je '57. (MLRA 10:7)

1. Ivenergolegprom.

(Furnaces)

KUDRIN, V.D.

Two-chamber whirling action furnace with return of burning peat from the back chamber to the front one. Tekst.prom. 16 no.4:42-43 Ap '56. (MLRA 9:7)

1.Nachal'nik proyektnogo otdela Ivanovskoy kontory "Energoelektrom". (Furnaces)

KUDRIN, V.D., inzhener.

Cyclone-rotation furnace for the burning of unprocessed milled peat. Tekst. prom. 16 no.8:45-46 Ag '56. (MLRA 9:10)

(Furnaces) (Peat)

KUDRIN, V.D.; SAVARENSKIY, Yu.S.

Cyclone combustion chamber for small boilers fired with milled peat. Prom.energ. 16 no.7:21-25 Jl '61. (MIRA 15:1)
(Furnaces)
(Peat)

KUDRIN, V. I.

China - Land Tenure

Agrarian policy of the Chinese Communist Party from 1937-to-1946. Vest. Len. un. 6, No. 8, 1951.

9. Monthly List of Russian Accessions, Library of Congress, _____1953. Unclassified.

[illegible] VELIN, A.T., polkovnik meditsinskoy sluzhby; KUNIN, V.I., inzh.-kapitan.

Intercommunication system in a therapeutic section. Sov.-med. zhur. no. 1:64-65 Ja '66 (MIRA 19:2)

BLYUMBERG, V.A.; SERGEYEV, M.A.; KULRIN, V.P., inzh., retsenzent

[Operator of vertical lathes] Tokar'-karusel'shchik. Izd.2., perer. i dop. Moskva, Mashinostroenie, 1964. 391 p.
(MIRA 17:7)

KUDRINA, M.A.; KUDRIN, V.S.

Evalution of the composition of the rare-metal mineralization in alkaline pegmatites of a Siberian massif. Geol.mest.red.elem. no.9:98-107 '61. (MIRA 14:9)
(Siberia--Pegmatites) (Siberia--Metals, Rare and minor)

KUDRINA, M.A.; KUDRIN, V.S.; SIDORENKO, G.A.

Britholite and alumobritholite from Siberian alkaline pegmatites. (MIRA 14:9)
Geol.mest.red.elem. no.9:108-120 '61.
(Siberia--Britholite) (Siberia--Pegmatites)

KUDRINA, M.A.; KUDRIN, V.S.

Gadolinite from Siberian alkaline pegmatites. Geol.rest.red.elem. no.9:120-126 '61. (MIRA 14:9)
(Siberia--Gadolinite) (Siberia--Pegmatites)

KUDRIN, V.S.

Alkali intrusions in the northeastern part of Tuva. Sov.geol. 5 no.4:40-52 Ap '62. (MIRA 15:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo syu'ya.
(Tuva Autonomous Province--Rocks, Igneous)

KUDRIN, V. ...; SHUBIN, V.G.; SIDORENKO, G.A.; DOLGOPOLOVA, K.A.

Crystals containing rare-earth elements. Trudy Min.muz. no.16:244-251 '65. (MIRA 18:8)

KUDRIN, V.S.; KUDRINA, M.A.; SHURIGA, T.N.; GINZBURG, A.I., glavnyy red.; APEL'TSIN, F.R., zamestitel' glavnogo redaktora; CHERNYSHEVA, L.V., red.; BEUS, A.A., red.; GREKULOVA, L.A., red.; GRIGOR'YEV, V.M., red.; ZABOLOTNAYA, N.P., red.; MATIAS, V.V., red.; POKALOV, V.T., red.; RODIONOV, G.G., red.; STEPANOV, I.S., red.; CHERNOSVITOV, Yu.L., red.; SHMANENKOV, I.V., red.

[Rare-metal metasomatic formations associated with subalkaline granitoids.] Redkometal'nye metasomaticheskie obrazovaniia, sviazannye s subshchelochnymi granitoidami. Moskva, Nedra, 1965. 145 p. (Geologiia mestorozhdenii redkikh elementov, no.25) (MIRA 18:8)

KUDRIN, V.V.

Testing electromechanical timers. Izm. tekh. no.11:65-66 N '65. (MIRA 18:12)